



THE IMPERIAL ENCYCLOPEDIA AND DICTIONARY 239

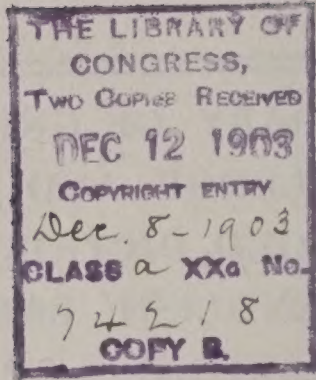
A LIBRARY OF UNIVERSAL
KNOWLEDGE AND AN UN-
ABRIDGED DICTIONARY OF
THE ENGLISH LANGUAGE
UNDER ONE ALPHABET

IN FORTY VOLUMES

VOLUME 32
REPOLISH—RUT

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SCHEME OF SOUND SYMBOLS

FOR THE PRONUNCIATION OF WORDS.

Note.—(·) is the mark dividing words respelt phonetically into syllables: (ˈ), the accent indicating on which syllable or syllables the accent or stress of the voice is to be placed.

Sound-symbols employed in Respelling.	Representing the Sounds as exemplified in the Words.	Words respelt with Sound-symbols and Marks for Pronunciation.
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<i>ā</i> ...	mate, fate, fail, aye.....	<i>māt, fāt, fāl, ā.</i>
<i>ă</i> ...	mat, fat.....	<i>măt, făt.</i>
<i>â</i> ...	far, calm, father.....	<i>fâr, kâm, fâ'thēr.</i>
<i>ä</i> ...	care, fair.....	<i>câr, fâr.</i>
<i>aw</i> ...	fall, laud, law.....	<i>farl, lawd, law.</i>
<i>ē</i> ...	mete, meat, feet, free.....	<i>mēt, mēt, fēt, frē.</i>
<i>ě</i> ...	met, bed.....	<i>mět, bēd.</i>
<i>é</i> ...	her, stir, heard, cur.....	<i>hēr, stēr, hērd, kēr.</i>
<i>ī</i> ...	pine, ply, height.....	<i>pīn, plī, hīt.</i>
<i>ĩ</i> ...	pin, nymph, ability.....	<i>pīn, nīmſ, ă-bĩl'ĩ-tĩ.</i>
<i>ō</i> ...	note, toll, soul.....	<i>nōt, tōl, sōl.</i>
<i>ö</i> ...	not, plot.....	<i>nöt, plöt.</i>
<i>ó</i> ...	move, smooth.....	<i>móv, smóth.</i>
<i>ō</i> ...	Goethe (similar to <i>e</i> in her)...	<i>gō'teh.</i>
<i>ow</i> ...	noun, bough, cow.....	<i>noun, bow, kow.</i>
<i>oy</i> ...	boy, boil.....	<i>boy, boyl.</i>
<i>ū</i> ...	pure, dew, few.....	<i>pūr, dū, fū.</i>
<i>ů</i> ...	bud, come, tough.....	<i>būd, kům, tůf.</i>
<i>ú</i> ...	full, push, good.....	<i>fúl, púsh, gúd.</i>
<i>ü</i> ...	French plume, Scotch guid.....	<i>plüm, güd.</i>

ch... chair, match..... *chär, mäch.*

ch... German buch, Heidelberg,

Scotch loch (guttural)..... *böch, hī'del-bērċh, löċh.*

g... game, go, gun..... *gām, gō, gūn.*

j... judge, gem, gin..... *jűj, jēm, jín.*

k... king, cat, cot, cut..... *kīng, kăt, kōt, kūt.*

s... sit, scene, cell, city, cypress..... *sīt, sēn, sēl, sīt'ĩ, sī'prēs.*

sh... shun, ambition..... *shűn, ăm-bīsh'űn.*

th... thing, breath..... *thīng, brēth.*

th... though, breathe..... *thō, brēth.*

z... zeal, maze, muse..... *zēl, māz, mūz.*

zh... azure, vision..... *ăzh'ēr, vīzh'űn.*

ABBREVIATIONS USED IN THIS WORK.

a. , or adj......adjective	A.U.C......in the year of the building of the city (Rome)[<i>Annourbis conditæ</i>]
A.B......Bachelor of Arts	Aug......August
abbr......abbreviation, abbreviated	aug......augmentative
abl. or abla......ablative	Aust......Austrian
Abp......Archbishop	A. V......authorized version [of Bible, 1611]
abt......about	avoir......avoids
Acad......Academy	B......Boron
acc. or ac......accusative	B......Britannic
accom......accommodated, accommodation	b......born
act......active	Ba......Barium
A.D......in the year of our Lord [<i>Anno Domini</i>]	Bart......Baronet
Adj......Adjutant	Bav......Bavarian
Adm......Admiral	bl. ; bb......barrel; barrels
adv. or ad......adverb	B.C......before Christ
A. F......Anglo-French	B.C.L......Bachelor of Civil Law
Ag......Silver [<i>Argentum</i>]	B.D......Bachelor of Divinity
agri......agriculture	bef......before
A. L......Anglo-Latin	Belg......Belgic
Al......Aluminium	Beng......Bengali
Ala......Alabama	Bi......Bismuth
Alb......Albanian	biog......biography, biographical
alg......algebra	biol......biology
A.M......before noon [<i>ante meridiem</i>]	B.L......Bachelor of Laws
A.M......Master of Arts	Bohem......Bohemian
Am......Amos	bot......botany, botanical
Amer......America, -n	Bp......Bishop
anat......anatomy, anatomical	Br......Bromine
anc......ancient, anciently	Braz......Brazilian
AN. M......in the year of the world [<i>Anno Mundi</i>]	Bret......Breton
anon......anonymous	Brig......Brigadier
antiq......antiquity, antiquities	Brit......British, Britannica
aor......aorist, -ic	bro......brother
app......appendix	Bulg......Bulgarian
appar......apparently	bush......bushel, bushels
Apr......April	C......Carbon
Ar......Arabic	c......century
arch......architecture	Ca......Calcium
archæol......archæology	Cal......California
arith......arithmetic	Camb......Cambridge
Ark......Arkansas	Can......Canada
art......article	Cant......Canterbury
artil......artillery	cap......capital
AS......Anglo-Saxon	Capt......Captain
As......Arsenic	Card......Cardinal
Assoc......Association	carp......carpentry
asst......assistant	Cath......Catholic
astrol......astrology	caus......causative
astron......astronomy	cav......cavalry
attrib......attributive	Cd......Cadmium
atty......attorney	Ce......Cerium
at. wt......atomic weight	Celt......Celtic
Au......Gold [<i>Aurum</i>]	cent......central
	cf......compare [<i>confer</i>]
	ch or chh......church

ABBREVIATIONS.

Chal.....	Chaldee	diff.....	different, (difference)
chap.....	chapter	dim.....	diminutive
chem.....	chemistry, chemical	dist....	district
Chin.....	Chinese	distrib..	distributive
Chron.....	Chronicles	div.....	division
chron.....	chronology	doz.....	dozen
Cl.....	Chlorine	Dr.....	Doctor
Class.....	Classical [= Greek and Latin]	dr.....	dram, drams
Co.....	Cobalt	dram.....	dramatic
Co.....	Company	Dut. or D..	Dutch
co....	county	dwt.....	pennyweight
cog.....	cognate [with]	dynam or	
Col.....	Colonel	dyn.....	dynamics
Col.....	Colossians	E.....	Erbium
Coll.....	College	E. or e....	East, -ern, -ward
colloq.....	colloquial	E. or Eng..	English
Colo.....	Colorado	Eccl.....	Ecclesiastes
Com.....	Commodore	eccl. or	} ecclesiastical [af-fairs]
com.....	commerce, commercial	eccles....	
com.....	common	ed.....	edited, edition, editor
comp.....	compare	e.g.....	for example [ex gratia]
comp.....	composition, compound	E. Ind. or	{ East Indies, East Indian
compar....	comparative	E. I....	
conch.....	conchology	elect.....	electricity
cong.....	Congress	Emp....	Emperor
Congl.....	Congregational	Encyc.....	Encyclopedia
conj.....	conjunction	Eng. or E..	English
Conn or Ct.	Connecticut	engin.....	engineering
contr.....	contraction, contracted	entom....	entomology
Cop.....	Coptic	env. ext..	envoy extraordinary
Cor.....	Corinthians	ep.....	epistle
Corn.....	Cornish	Eph.....	Ephesians
corr.....	corresponding	Episc.....	Episcopal
Cr.....	Chromium	eq. or =...	equal, equals
crystal.....	crystallography	equiv.....	equivalent
Cs.....	Cæsium	esp.....	especially
ct.....	cent	Est.....	Esther
Ct. or Conn.	Connecticut	estab.....	established
Cu.....	Copper [Cuprum]	Esthon....	Esthonian
cwt.....	a hundred weight	etc.....	and others like [et cetera]
Cyc.....	Cyclopedia	Eth.....	Ethiopic
D.....	Didymium	ethnog....	ethnography
D. or Dut..	Dutch	ethnol....	ethnology
d.....	died	et seq.....	and the following [et sequentia]
d. [l. s. d.]	penny, pence	etym.....	etymology
Dan.....	Daniel	Eur.....	European
Dan.....	Danish	Ex.....	Exodus
dat.....	dative	exclam....	exclamation
dau.....	daughter	Ezek.....	Ezekiel
D. C.....	District of Columbia	Ezr.....	Ezra
D.C.L.....	Doctor of Civil [or Common] Law	F.....	Fluorine
D.D.....	Doctor of Divinity	F. or Fahr.	Fahrenheit
Dec.....	December	f. or fem..	feminine
dec.....	declension	F. or Fr....	French
def.....	definite, definition	fa.....	father
deg.....	degree, degrees	Fahr. or F.	Fahrenheit
Del.....	Delaware	far.....	farriery
del.....	delegate, delegates	Fe.....	Iron [Ferrum]
dem.....	democratic	Feb.....	February
dep.....	deputy	fem or f....	feminine
dep.....	deponent	fig.....	figure, figuratively
dept.....	department	Fin.....	Finnish
deriv.....	derivation, derivative	F.—L.....	French from Latin
Deut.....	Deuteronomy	Fla.....	Florida
dial.....	dialect, dialectal	Flem.....	Flemish
diam.....	diameter	for.....	foreign
Dic.....	Dictionary	fort.....	fortification
		Fr. or F....	French
		fr.....	from

ABBREVIATIONS.

freq.....frequentative	ind.....indicative
Fris.....Frisian	indef.....indefinite
ft.....foot, feet	Indo-Eur...Indo-European
fut.....future	inf.....infantry
G. or Ger...German	inf or infin.infinite
G.....Glucinium	instr.....instrument, -al
Ga.....Gallium	int... ..interest
Ga.....Georgia	intens.....intensive
Gael.....Gaelic	interj. or
Gal.....Galatians	int.....interjection
gal.....gallon	interrog...interrogative pro
galv.....galvanism, galvanic	noun
gard.....gardening	intr. or
gen.....gender	intrans...intransitive
Gen.....General	Io.....Iowa
Gen.....Genesis	Ir.....Iridium
gen.....genitive	Ir.....Irish
Geno.....Genoese	Iran.....Iranian
geog.....geography	irr.....irregular, -ly
geol.....geology	Is.....Isaiah
geom.....geometry	It.....Italian
Ger.....German, Germany	Jan.....January
Goth.....Gothic	Jap.....Japanese
Gov.....Governor	Jas.....James
govt.....government	Jer.....Jeremiah
Gr.....Grand, Great	Jn.....John
Gr.....Greek	Josh.....Joshua
gr.....grain, grains	Jr.....Junior
gram.....grammar	Judg.....Judges
Gr. Brit...Great Britain	K.....Potassium [<i>Kalium</i>]
Gris.....Grisons	K.....Kings [in Bible]
gun.....gunnery	K.....king
H.....Hegira	Kan.....Kansas
H.....Hydrogen	Kt.....Knight
h.....hour, hours	Ky.....Kentucky
Hab.....Habakkuk	L.....Latin
Hag.....Haggai	L.....Lithium
H. B. M....His [or Her] Britan- nic Majesty	l. [l. s. d.], } pound, pounds or £..... } [sterling]
Heb.....Hebrew, Hebrews	La.....Lanthanum
her.....heraldry	La.....Louisiana
herpet.....herpetology	Lam.....Lamentations
Hg.....Mercury [<i>Hydrar- gyrum</i>]	Lang.....Languedoc
hhd.....hogshead, hogsheads	lang.....language
Hind.....Hindustani, Hindu, or Hindi	Lap.....Lapland
hist.....history, historical	lat.....latitude
Hon.....Honorable	lb.; llb. or } pound; pounds lbs..... } [weight]
hort.....horticulture	Let.....Lettish
Hos.....Hosea	Lev.....Leviticus
Hung.....Hungarian	LG.....Low German
Hydros....Hydrostatics	L.H.D.....Doctor of Polite Lit- erature
I.....Iodine	Lieut.....Lieutenant
I.; Is.....Island; Islands	Lim.....Limousin
Icel.....Icelandic	Lin.....Linnæus, Linnæan
ichth.....ichthyology	lit.....literal, -ly
Ida.....Idaho	lit.....literature
i.e.....that is [<i>id est</i>]	Lith.....Lithuanian
Ill.....Illinois	lithog.....lithograph, -y
illus.....illustration	LL.....Late Latin, Low Latin
impera or	LL.D.....Doctor of Laws
impr.....imperative	long.....longitude
impers.....impersonal	Luth.....Lutheran
imp for imp.imperfect	M.....Middle
impf. p. or	M.....Monsieur
imp.....imperfect participle	m.....mile, miles
improp.....improperly	m. or masc.masculine
In.....Indium	M.A.....Master of Arts
in.....inch, inches	Macc.....Maccabees
incept.....inceptive	mach... ..machinery
Ind.....India, Indian	Mag.....Magazine
Ind.....Indiana	

ABBREVIATIONS.

Maj.....	Major	N. A., or	
Mal.....	Malachi	N. Amer.	North America, -n
Mal.....	Malay, Malayan	nat.....	natural
manuf.....	manufacturing, manufacturers	naut.....	nautical
Mar.....	March	nav.....	navigation, naval af- fairs
masc or m.	masculine	Nb.....	Niobium
Mass.....	Massachusetts	N. C. or	
math.....	mathematics, math- ematical	N. Car...	North Carolina
Matt.....	Matthew	N. D.....	North Dakota
m.d.....	Doctor of Medicine	Neb.....	Nebraska
MD.....	Middle Dutch	neg.....	negative
Md.....	Maryland	Neh.....	Nehemiah
ME.....	Middle English, or Old English	N. Eng...	New England
Me.....	Maine	neut or n...	neuter
mech.....	mechanics, mechani- cal	Nev.....	Nevada
med.....	medicine, medical	N.Gr.....	New Greek, Modern Greek
mem.....	member	N. H.....	New Hampshire
mensur...	mensuration	NHG.....	New High German [German]
Messrs. or		Ni....	Nickel
MM.....	Gentlemen, Sirs	N. J.....	New Jersey
metal.....	metallurgy	NL.....	New Latin, Modern Latin
metaph...	metaphysics, meta- physical	N. Mex....	New Mexico
meteor....	meteorology	N. T., or	
Meth.....	Methodist	N. Test...	New Testament
Mex.....	Mexican	N. Y.....	New York [State]
Mg.....	Magnesium	nom.....	nominative
M.Gr.....	Middle Greek	Norm. F...	Norman French
MHG.....	Middle High Ger- man	North. E...	Northern English
Mic.....	Micah	Norw... ..	Norwegian, Norse
Mich.....	Michigan	Nov.....	November
mid.....	middle [voice]	Num.....	Numbers
Milan.....	Milanese	numis....	numismatics
mid. L. or {	Middle Latin, Me-	O.....	Ohio
ML..... {	diæval Latin	O.....	Old
milit. or		O.....	Oxygen
mil....	military [affairs]	Obad.....	Obadiah
min.....	minute, minutes	obj.....	objective
mineral...	mineralogy	obs. or †...	obsolete
Minn.....	Minnesota	obsoles...	obsolescent
Min. Plen.	Minister Plenipoten- tiary	O.Bulg....	Old Bulgarian or Old Slavic
Miss.....	Mississippi	Oct.....	October
ML. or {	Middle Latin, Me-	Odontog...	odontology
mid. L... {	diæval Latin	OE.....	Old English
MLG.....	Middle Low German.	OF or	
Mlle.....	Mademoiselle	O. Fr....	Old French
Mme.....	Madam	OHG.....	Old High German
Mn.....	Manganese	Ont.....	Ontario
Mo.....	Missouri	opt....	optics, optical
Mo.....	Molybdenum	Or.....	Oregon
mod.....	modern	ord.....	order
Mont.....	Montana	ord.....	ordnance
Mr.....	Master [Mister]	org.....	organic
Mrs.....	Mistress [Missis]	orig.....	original, -ly
MS.; MSS.	manuscript; manu- scripts	ornith....	ornithology
Mt.....	Mount, mountain	Os.....	Osmium
mus.....	music	OS.	Old Saxon
MUS.DOC...	Doctor of Music	O. T., or	
myth.....	mythology, mytho- logical	O. Test...	Old Testament
N.....	Nitrogen	Oxf.....	Oxford
N. or n....	North, -ern, -ward	oz.....	ounce, ounces
n.....	noun	P.....	Phosphorus
n or neut...	neuter	p.; pp.....	page; pages
Na.....	Sodium [Natrium]	p., or part.	participle
Nah.....	Nahum	Pa. or Penn.	Pennsylvania
		paint.....	painting
		palæon....	palæontology
		parl.....	parliament
		pass.....	passive

ABBREVIATIONS.

pathol or
 path..... pathology
 Pb..... Lead [*Plumbum*]
 Pd..... Palladium
 Penn or Pa. Pennsylvania
 perf..... perfect
 perh..... perhaps
 Pers..... Persian, Persic
 pers..... person
 persp... .. perspective
 pert..... pertaining [to]
 Pet..... Peter
 Pg. or Port. Portuguese
 phar..... pharmacy
 PH.D..... Doctor of Philoso-
 phy
 Phen..... Phenician
 Phil..... Philipians
 Philem..... Philemon
 philol.... philology, philologi-
 cal
 philos. { philosophy, philo-
 or phil... } sophical
 phonog.... phonography
 photog.... photography
 phren... .. phrenology
 phys..... physics, physical
 physiol... physiology, physi-
 ological
 Pied..... Piedmontese
 Pl..... Plate
 pl. or plu... plural
 Pl. D..... Platt Deutsch
 plupf..... pluperfect
 P.M..... afternoon [*post meri-
 diem*]
 pneum..... pneumatics
 P. O..... Post-office
 poet..... poetical
 Pol..... Polish
 pol econ... political economy
 polit..... politics, political
 pop... .. population
 Port. or Pg. Portuguese
 poss..... possessive
 pp..... pages
 pp..... past participle, per-
 fect participle
 p. pr..... present participle
 Pr. or Prov. Provençal
 pref..... prefix
 prep.... .. preposition
 Pres..... President
 pres..... present
 Presb..... Presbyterian
 pret..... preterit
 prim..... primitive
 priv..... privative
 prob..... probably, probable
 Prof..... Professor
 pron..... pronoun
 pron..... pronunciation, pro-
 nounced
 prop..... properly
 pros..... prosody
 Prot... .. Protestant
 Prov. or Pr. Provençal
 Prov..... Proverbs
 prov..... province, provincial
 Prov. Eng. Provincial English
 Prus..... Prussia, -n
 Ps..... Psalm, Psalms
 psychol... psychology

pt..... past tense
 pt..... pint
 Pt..... Platinum
 pub..... published, publisher,
 publication
 pwt..... pennyweight
 Q..... Quebec
 qt..... quart
 qtr..... quarter [weight]
 qu..... query
 q.v..... which see [*quod*
 vide]
 R..... Rhodium
 R..... River
 Rb..... Rubidium
 R. Cath.... Roman Catholic
 rec. sec.... recording secretary
 Ref..... Reformed
 refl..... reflex
 reg..... regular, -ly
 regt..... regiment
 rel. pro. or
 rel..... relative pronoun
 repr..... representing
 repub..... republican
 Rev... .. Revelation
 Rev..... The Reverend
 Rev. V..... Revised Version
 rhet..... rhetoric, -al
 R. I..... Rhode Island
 R. N..... Royal Navy
 Rom..... Roman, Romans
 Rom..... Romanic or Ro-
 mance
 Rom. Cath. { Roman Catholic
 Ch. or R. } Church
 C. Ch.... }
 r.r..... railroad
 Rt. Rev... Right Reverend
 Ru..... Ruthenium
 Russ..... Russian
 r.w..... railway
 S..... Saxon
 S..... Sulphur
 s..... second, seconds
 s. [l. s. d.].. shilling, shillings
 S. or s..... South, -ern, -ward
 S. A. or
 S. Amer.. South America, -n
 Sam..... Samaritan
 Sam..... Samuel
 Sans, or
 Skr..... Sanskrit
 Sb..... Antimony [*Stibium*]
 s.c..... understand, supply,
 namely [*scilicet*]
 S. C. or
 S. Car.... South Carolina
 Scand..... Scandinavian
 Scot..... Scotland, Scotch
 scr..... scruple, scruples
 Scrip..... Scripture [s], Scrip-
 tural
 sculp..... sculpture
 S. D..... South Dakota
 Se..... Selenium
 sec.... .. secretary
 sec..... section
 Sem..... Semitic
 Sep..... September
 Serv..... Servian
 Shaks..... Shakespeare
 Si..... Silicon

ABBREVIATIONS.

Sic.....	Sicilian	trigon.....	trigonometry
sing.....	singular	Turk.....	Turkish
sis.....	sister	typog.....	typography, typo- graphical
Skr. or		U.....	Uranium
Saas.....	Sanskrit	ult.....	ultimate, -ly
Slav.....	Slavonic, Slavic	Unit.....	Unitarian
Su.....	Tin [<i>Stannum</i>]	Univ.....	Universalist
Soc.....	Society	Univ.....	University
Song Sol.....	Song of Solomon	U. Presb.....	United Presbyterian
Sp.....	Spanish	U. S.....	United States
sp. gr.....	specific gravity	U. S. A.....	United States Army
sq.....	square	U. S. N.....	United States Navy
Sr.....	Senior	Ut.....	Utah
Sr.....	Strontium	V.....	Vanadium
.....	Saint	v.....	verb
.....	street	Va.....	Virginia
stat.....	statute	var.....	variant [word]
S.T.D.....	Doctor of Sacred Theology	var.....	variety of [species]
subj.....	subjunctive	Ven.....	Venerable
suf.....	suffix	Venet.....	Venetian
Su. Goth.....	Suo-Gothic	vet.....	veterinary
superl.....	superlative	v. i. or	
Supp.....	Supplement	v. intr.....	verb intransitive
Supt.....	Superintendent	vil.....	village
surg.....	surgery, surgical	viz.....	namely, to-wit [<i>vide-</i> <i>licet</i>]
Surv.....	surveying	v. n.....	verb neuter
Sw.....	Swedish	voc.....	vocative
Swab.....	Swabian	vol.....	volume
sym.....	symbol	vols.....	volunteers
syn.....	synonym, -y	Vt.....	Vermont
Syr.....	Syriac, Syrian	v. tr.....	verb transitive
t.....	town	W.....	Tungsten [<i>Wolfram</i>]
Ta.....	Tantalum	W.....	Welsh
Tart.....	Tartar	W. or w.....	West, -ern, -ward
Te.....	Tellurium	Wal.....	Walachian
technol.....	technology	Wall.....	Walloon
teleg.....	telegraphy	Wash.....	Washington
Tenn.....	Tennessee	Westph.....	Westphalia, -n
term.....	termination	W. Ind. } West Indies, West or W. I.. } Indian	
terr.....	territory	Wis.....	Wisconsin
Teut.....	Teutonic	wt.....	weight
Tex.....	Texas	W. Va.....	West Virginia
Th.....	Thorium	Wyo.....	Wyoming
theat.....	theatrical	Y.....	Yttrium
theol.....	theology, theological	yd.....	yard
therap.....	therapeutics	yr.....	year
Thess.....	Thessalonians	Zech.....	Zechariah
Ti.....	Titanium	Zeph.....	Zephaniah
Tim.....	Timothy	Zn.....	Zinc
Tit.....	Titus	zool.....	zoology, zoological
Tl.....	Thallium	Zr.....	Zirconium
toxicol.....	toxicology		
tp.....	township		
tr. or trans.....	transitive		
transl.....	translation, trans. lated		

See also ABBREVIATIONS in Vol. I.

IMPERIAL ENCYCLOPEDIA AND DICTIONARY.

REPOLISH, v. *rē-pōl'ish* [*re*, again, and *polish*]: to polish again.

REPONE, v. *rē-pōn'* [L. *reponĕrĕ*, to replace, to restore—from *re*, back or again; *ponĕrĕ*, to put or place]: in *Scotch law*, to restore to a situation formerly held. **REPO'NING**, imp. **REPONED'**, pp. *-pōnd'*.

REPORT, v. *rĕ-pōrt'* [L. *reportārĕ*, to bring back; to report—from *re*, back or again; *porto*, I carry: It. *riportare*; F. *rapporter*, to relate]: to bear or bring back, as an answer; to give an account of; to relate; to circulate by popular rumor; to announce or make a statement of facts; to give an official statement; to follow the business of a reporter; in *mil.*, to announce or inform of one's presence; to state officially to a superior the breach or neglect of duty on the part of another: N. an account or statement circulated; that which is noised about respecting a thing; common fame; noise, as of a gun; an official statement of facts; a statement of proceedings, etc.; an account of a law case. **REPORT'ING**, imp.: N. the act of giving an account of anything orally or in writing; the art or profession of a reporter. **REPORT'ED**, pp. **REPORT'ER**, n. *-ĕr*, one who writes down in shorthand the proceedings of legislatures, of courts of law, and of public meetings, etc., with a view to publication. **REPORT'ABLE**, a. *-ă-bl*, fit to be reported. **TO BE REPORTED** or **TO BE REPORTED OF**, to be well or ill spoken of; to be mentioned with respect or reproach. **TO REPORT ONE'S SELF**, to present one's self before a superior, or at headquarters, for inspection or orders. **CONFIDENTIAL REPORT**, a private and secret statement of the results of an inspection or inquiry to a superior authority.—**SYN.** of 'report, v.': to narrate; recite; tell; relate; describe; detail;—of 'report, n.': narration; detail; relation; account; description; narrative; recital; hearsay; story; rumor; fame; renown. **repute.**

REPORTING.

REPORTING, BRITISH PARLIAMENTARY. public reports of speeches, debates, and proceedings in the British legislature. The voluminous work *Parliamentary History of England*, is considered in England the most valuable historical work in the language. In the reign of Queen Anne, a monthly pamphlet, the *Political State*, gave an outline of the debates in parliament. In the reign of George I., the *Historical Register*, published annually, professed to give reports of parliamentary speeches. The *Gentleman's Magazine* began a monthly publication of the debates, the number for 1735, Aug., containing a report of the debate in the house of lords on the previous Jan. 3. Cave, the publisher, continued the practice in succeeding numbers; procuring for a friend or two with himself, admission into the gallery of the house of commons, or to some concealed station in the other house, where they privately took notes, which they compared and adjusted in a neighboring tavern. An abler hand, Guthrie the historian, was employed to reduce this crude matter to form; but no publication of it was made till after the session had ended. Cave, at length growing bolder, printed in full the names of speakers. Both houses took alarm, and passed resolutions forbidding reports of debates. The publication of the debates of either house had been repeatedly declared a high breach of privilege. In 1738 Speaker Onslow called the attention of the house of commons to the breach of its standing orders by Cave and others. The result was another resolution against the publication of debates 'either while parliament is sitting or during the recess,' and a threat to proceed against offenders with the 'utmost severity.' The reports, notwithstanding, still appeared, but under the disguise of 'Debates in the Senate of Lilliput,' in the *Gentleman's Magazine*; and 'Debates in the Political Club,' in the *London Magazine*. The celebrated Dr. Johnson was employed by Cave in the composition of his parliamentary debates, and the reports 1740-43 are held to have been entirely prepared by him; sometimes with the assistance of the above-mentioned Guthrie, who had a good memory, and used to bring home as much as he could recollect from the house; and sometimes, according to Boswell, with no other aid than the names of the orators and the side on which they spoke. When it was observed to Johnson that he dealt out reason and eloquence equally to both parties, he remarked: 'I took care that the whig dogs should not have the best of it.' It was not till 30 years later that the parliamentary debates descended from the magazines to the newspapers. The latter had, however, for some time resolved to report the debates (Woodfall's *Junius*, iii. 345), and they took advantage of the popular excitement concerning the Luttrell-Wilkes election for Middlesex, to try the right of the house to interdict the publication of its proceedings.

The memorable contest between parliament and the press began at the close of 1770. Some printers of London daily papers were ordered under arrest, 1771, Mar., for

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printing the proceedings of the house of commons. Some surrendered, and asking pardon on their knees at the bar of the house, were discharged. One, Miller, not surrendering, was ordered into the custody of the serjeant-at-arms, whose messenger arrested Miller within the city of London, and was immediately given into custody by Miller for assault, and carried before the lord mayor, who declared the speaker's warrant illegal, discharged Miller, and committed the messenger for assault. Two other printers, Wheble and Thompson, had been carried respectively before Aldermen Wilkes and Oliver, who immediately discharged them, and bound them over to prosecute, and the speaker's messenger to answer, a charge of assault and false imprisonment. The house of commons was furious. It ordered the attendance of the lord mayor (a member of the house), and of Alderman Oliver. The aldermen of London attended the house, and pleaded their own cause, alleging that their charters exempted the citizens from any law process being served on them except by their own officers. The house committed the lord mayor and Alderman Oliver to the Tower. The city of London loudly protested, and the whole country responded to the appeal. The power of parliament to imprison ceases at the end of the current session, and on the day of prorogation, 1771, July 23, the lord mayor and Alderman Oliver marched out of the Tower in triumph; and at night the city was illuminated. A few days afterward, the speaker's messenger who had arrested Wheble was tried at Guildhall for the assault, found guilty, fined 1s., and imprisoned for two months. Next session, the house of commons tacitly acknowledged itself beaten. The printers defied the house and continued to publish their proceedings. In a short time, the house of lords also conceded the point. The victory was complete, and no attempt has since been made to prevent publication of the debates and proceedings of parliament. The resolution affirming that it is a high indignity to, and 'notorious breach of, the privileges of the house to publish the debates,' still remains unrevoked on the Journals; yet galleries have been constructed for accommodation of reporters. It is still in the power of any member, who may call the speaker's attention to the fact that 'strangers are present,' to exclude the public and the reporters from the house; and this power has been exercised during living memory; but on such occasions one or more members who have dissented from this course have taken notes of the speeches, and have avowedly sent them to the newspapers.

The old machinery of newspaper reporting was exceedingly defective till 1815. At that time the public interest in domestic affairs made the publication of parliamentary debates an object of national importance; and in a few years parliamentary reporting assumed its present full, detailed, and accurate character. Increased facilities for the discharge of their important and arduous duties were from time to time given to the reporters. In the splendid

REPORTING.

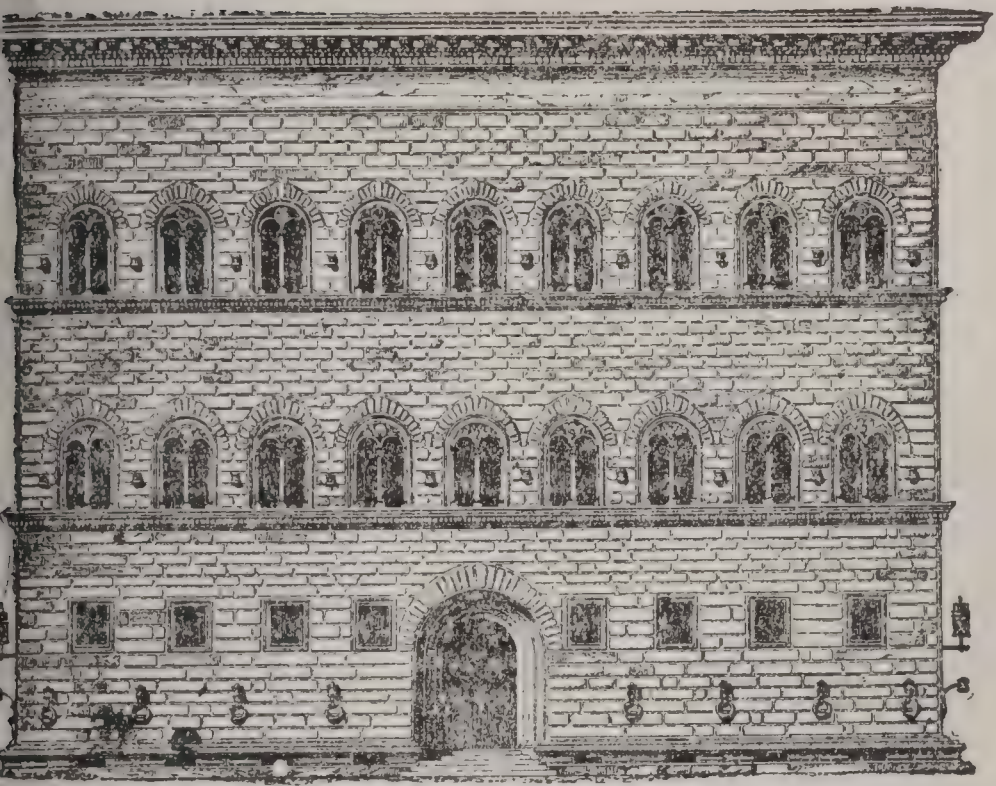
new Palace of Westminster, in which the two houses now hold their deliberations, exclusive galleries are provided for accommodation of reporters: in the house of lords, their gallery faces the throne and the woolsack; in the house of commons, it is behind the chair. The organization of parliamentary reporters for the *Times* newspaper and other great English journals is admirably complete; and arrangements of all kinds have been brought to a perfect system for securing expedition and accuracy. A long speech may be said to extend from the mouth of the speaker to Printing House Square. A part will be wet with ink on the reporters' table; one section will be travelling over the Thames Embankment in swift relays of cabs; a portion, becoming larger every few minutes, will be in the hands of the compositors, and a proof-sheet ready printed, of the earlier passages, will be on the desk of the editor.

A few years ago the object desired by newspaper proprietors was not a literal report, but what may be called the spirit of a speech—a faithful abridgment of the sentiment, matter, and style of the speaker. Parliamentary reports subsequently became more diffuse, the debates of a single evening not unfrequently occupying between 20 and 30 columns of small type. This, however, has not been maintained; and though much might be said against reporting at great length of important speeches, there can be nothing said in favor of such excessive condensation of all speeches as prevails in most of the London newspapers—the *Times* and the *Standard* being exceptions. The only publication since the *Mirror of Parliament* which professes to give all the speeches fully and accurately, is *Hansard's Parliamentary Debates* (see HANSARD).

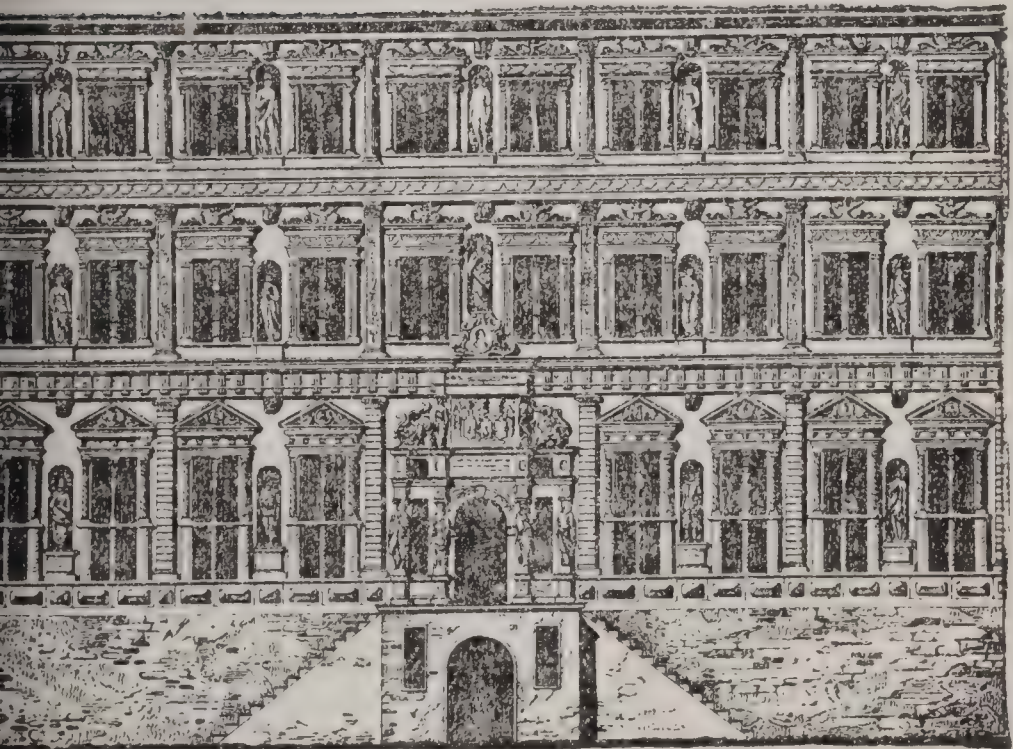
Publicity is now recognized as one of the most important instruments of parliamentary government. Long before a measure can be adopted by the legislature, it has been approved or condemned by the public voice; and, living and acting in public, parliament under a free representation has become as sensitive to public opinion as a barometer to atmospheric pressure. See May's *Constitutional History of England*; Knight Hunt's *Fourth Estate*; Andrews's *History of British Journalism*; papers in *Chambers's Journal* in 1834; Grant's *The Newspaper Press* (1871); also article NEWSPAPER.—See WILKES, JOHN.

In European continental countries under constitutional government, official shorthand writers are usually appointed by the govt. to report the debates; and these reports may, under certain restrictions, be given to the press.—See REPORTING, CONGRESSIONAL AND OTHER LEGISLATIVE.

REPORTING, CONGRESSIONAL AND OTHER LEGISLATIVE: act of taking down for preservation or publication the speeches and proceedings in legislative bodies. In the United States it is done by two kinds of reporters, official and newspaper. The duties of an official reporter are wholly distinct from those of the clerk or sec. of the body who keeps the official record of the proceedings and



Strozzi Palace, Florence, erected 1489.



Heidelberg Castle, erected 1556-1559.

REPOSE—REPOUR.

the movement of bills and resolutions. Formerly rapid long-hand writers were employed to report legislative speeches and debates; but they are now generally superseded by stenographers. All official reporters in the U. S. congress are stenographers. In the senate there are a chief and four assistants; in the house a chief and five assistants. In both branches nearly all the clerks of committees are stenographers. The same customs prevail in the principal state legislatures.—Each house of congress has a special gallery for the exclusive use of newspaper reporters, under the control of the senate committee on rules and of a standing committee of the newspaper correspondents on duty at Washington. These reporters do not pretend to take down speeches and debates *verbatim*, but rather apply themselves to running notes of a speech or debate and to composing word pictures of scenes in the halls below during important or exciting movements. Strict rules govern the issue of tickets for the privilege of the press galleries, and no reporter holding one can be personally interested in any legislation before congress or in any claim before its committees. In 1895 more than 150 reporters, representing newspapers in every part of the country, held tickets to the press galleries.

REPOSE, v. *rě-pōz'* [F. *repos*, rest; *reposer*, to rest, to repose—from L. *repositus*, placed back again—from *re*, back or again; *pono*, I place: It. *riposare*: Sp. *reposar*]: to lay or be at rest; to rest mentally; to place or rest in, as confidence; to sleep; to recline; to rely, with *in* or *on*: N. state of sleep; rest; quiet; rest of mind; in *paint.*, certain parts in the composition of a picture which seem to tranquillize its aspect. **REPO'SING**, imp. **REPOSED'**, pp. *-pōz'd'*. **REPO'SAL**, n. *-zāl*, the act of reposing or resting. **REPO'SEDLY**, ad. *-zěd-lě*. **REPO'SEDNESS**, n. *-zěd-něs*, state of being at rest. **REPO'SER**, n. *-zěr*, one who reposes. **REPOS'IT**, v. *-pōz'it*, to lay up; to lodge, as for safety or preservation. **REPOS'ITING**, imp. **REPOS'ITED**, pp. **REPOSITION**, n. *rě'pō-zish'ün*, the act of replacing; the act of laying up in safety. **REPOSITORY**, n. *rě-pōz'i-ter'i* [L. *repositorium*, a cupboard]: a place where things are deposited for safety or preservation; a place where articles are kept for sale.—**SYN.** of 'repose, v.': to rest; recline; sleep; lodge; abide; settle; deposit; reposit; couch;—of 'repose, n.': rest; ease; quiet; quietness; peace; tranquillity; recumbency; reclamation.

REPOSSESS, v. *rě'pōz-zěs'* [*re*, again, and *possess*]: to possess again. **RE'POSSES'SION**, n. the act of possessing again.

REPOUR, v. *rě-pōr'* [*re*, again, and *pour*]: to pour again.

REPOUSSÉ—REPREHEND.

REPOUSSÉ, n. *rě-pó's'ā* [F.—from *repousser*, to thrust back; *re*, again, and *pousser*; L. *pulsare*, to push]: ornamented metal-work formed in relief; and the method of producing it. The ornamentation resembles embossing; but the effect is produced by hammering up the metal, which is generally thin, from the back; and when a rude resemblance of the figure to be produced is thus formed, it is worked up by pressing and chasing the front surface. The finest specimens of this art are of the *cinq-ue-cento* or 16th c. period, by Benvenuto Cellini. Cellini carried the art to France, where it has of late been much developed. Much common R. work is done in various countries in the soft white metals, such as pewter and Britannia metal; and as these are easily worked, and can afterward be electroplated, so as to hide the quality of the material, they are in considerable demand. After they are hammered up from the inside, they are filled with liquid pitch, and set by until it becomes solid. Then they are modelled and chased on the surface, the pitch forming a support, which prevents the tools from pressing down more than is required. The pitch is afterward melted and drained out, and a subsequent boiling in an alkaline lye completely cleans the work. Tea and coffee pots are among the chief articles made in this manner.

REPPLIER, AGNES: essayist; b. Philadelphia. She is of French extraction, and a member of the Rom. Cath. ch. She is largely self educated, not having learned to read until nine years of age, but having been an eager listener to the best reading. Her method still is to read and to write what interests her. She began writing at an early age, and showed a combined force of thought and charm of expression which soon secured place in the *Atlantic Monthly* and other leading periodicals. She visited England 1894, and was received with welcome in literary circles. Her published works include *Books and Men*, 1888; *Points of View*, 1891; *Essays in Miniature*, 1892; *Essays in Idleness*, 1893; *In the Dozy Hours*, 1894; and *Varia* (Essays) 1897. Miss R. has also edited a *Volume of Famous Verse in Riverside Library for Young People*.

REPREHEND, v. *rěp'rě-hěnd'* [L. *reprehen'dērē*, to check, to censure; *reprehen'sus*, checked, restrained—from *re*, again; *prehendērē*, to lay hold of: It. *riprendere*; F. *reprandre*]: to administer reproof or censure to; to chide; to rebuke; to censure. **REP'REHEND'ING**, imp. **REP'REHEND'ED**, pp. **REP'REHEND'ER**, n. *-ēr*, one who reprehends. **REP'REHEN'SIBLE**, a. *-rě-hěn'si-bl* [F.—L.]: deserving reproof or censure; blamable; culpable. **REP'REHEN'SIBLY**, ad. *-blī*. **REP'REHEN'SIBLENESS**, n. *-bl nēs*, the quality of being reprehensible; culpableness. **REP'REHEN'SION**, n. *-hěn'shūn* [F.—L.]: reproof; censure. **REP'REHEN'SIVE**, a. *-siv*, or **REP'REHEN'SORY**, a. *-ser-ī*, containing reproof or censure.—**SYN.** of 'reprehension': reproof; blame; censure; admonition; caution; reprimand; warning.

REPRESENT—REPRESENTATION.

REPRESENT, v. *rip'rě-zěnt'* [F. *représenter*—from L. *repräsentāre*, to represent—from *re*, again; *präsentāre*, to place before—from *præsens* or *præsentem*, present: It. *rap-presentare*]: to show or exhibit by resemblance; to describe; to show by words and actions; to personate; to act the character of another, as in a play; to appear in an assembly for others; to act as a substitute for; to show by arguments or a statement of facts. **REP'RESENT'ING** imp. **REP'RESENTED**, pp. **REP'RESENTER**, n. *-ēr*, one who represents. **REP'RESENT'ABLE**, a. *-ā-bl*, that may be represented. **REP'RESENT'MENT**, n. *-mēnt*, image; an idea proposed as exhibiting the likeness of something. **REP'RESENTA'TION**, n. *-tā'shūn* [F.—L.]: the act of describing or showing; a respectful declaration; that which exhibits by resemblance, as a picture or a statue; a plan; a map; a model: the act of representing others, as by deputation; a collective body of representatives (see **REPRESENTATION**, in *Politics*): performance, as of a play on the stage. **REP'RESENT'ATIVE**, n. *-ā-tīv*, one who exhibits the likeness of another; an agent; a deputy; a substitute; one who represents another or others; in *nat. hist.*, that which represents the full character of the type of a group: **ADJ.** bearing the character or power of another; conducted by the agency of delegates chosen by the people. **REP'RESENT'ATIVELY**, ad. *-lī*. **REP'RESENT'ATIVENESS**, n. *-nēs*, the state or quality of being representative.—**SYN.** of 'representation': resemblance; exhibition; likeness; description; show; delineation; portraiture; sight; spectacle.

REPRESENTA'TION, in *Politics*: function of the delegate of a constituency in a legislative or other public assembly. The principle of R., even where not directly recognized, must be presumed to have existed to some extent in all governments not purely democratic, so far as the sense of the whole nation was considered to be spoken by a part, and the decisions of a part to be binding on the whole. The constitution of ecclesiastical councils, in which an express or implied R. is necessarily involved, doubtless conduced to the application of a similar principle to national assemblies; but it is in the exigencies of feudalism that we trace the beginnings of an avowed and regulated system of political R. The feudal superior who had to levy aid from his vassals, summoned a limited number of them to attend him, and confer regarding the required aid. The earliest complete system of representative institutions is found in the parliament of the Sicilies under the Swabian kings; but Britain is the only country in which a representative feudal assembly ripened into a legislative. As early as the reign of Henry III., we find the knights of the shire elected by the 'men of the country,' probably the king's military tenants, to consider, in the stead of each and all of them, what aid would be granted to the king for a proposed expedition into Gascony. Representatives of the burgesses were soon afterward summoned, and were permanently ingrafted on parliament by Edward I. In Scotland, representative burgesses formed a part of the national assembly from the time of

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Robert Bruce's famous parliament at Cambuskenneth 1326; but till a comparatively late period, all the barons or freeholders of the country formed part of the king's council and were entitled to attend in person. James I., on his return from England, attempted to introduce a system of R. among them, but it became practically inoperative; and it was not till 1587 that the representatives of the small barons came to form part of the parliament. The progress of society has led to great changes in the constitution of the British elective body, the most sweeping being those introduced by the Reform acts: see PARLIAMENT: REFORM, PARLIAMENTARY.

An important question naturally arises connected with the subject of R.: Is the delegate the mere mouthpiece of his constituents, who must give effect to all their opinions and interests, or is it his duty to exercise his trust in the first instance for the general welfare of the nation? The former idea of R. was doubtless the earlier one; but it cannot be easily vindicated on any proper theory of government; and it is now the generally recognized doctrine among English statesmen, that a member of the house of commons is bound to the entire nation by ties higher than those which bind him to his constituents; and that he ought to support such measures as he judges most beneficial to the country, even at the risk of prejudicing the immediate local interests of the body which sends him. It is therefore not very easy to reconcile with sound principles the usage which obtains so largely of demanding pledges from candidates for R. as to how they are to vote on every public question that is likely to come before them. Yet there is practically a difficulty in preventing a system of R. from becoming one of mere delegation, so long as the constitution gives to the electors the power of making their vote depend on any conditions which they may think fit to attach to it.

Most speculative politicians of the present day consider a representative government of some sort as the best ideal type of government; but all repudiate the idea of an inborn right in all citizens to participate, and still more to participate equally, in the right of choosing the governing body. Any very extensive suffrage tends to the predominance of mere numbers over intelligence, while a very limited suffrage has been objected to as precluding the benefits which the community at large are presumed to draw from participation in public functions. Several intelligent political writers, while advocating a widely extended suffrage, have proposed a graduation of that suffrage by giving to each individual a number of votes corresponding, as far as practicable, to his intelligence, property, or social position. This is set forth as the ideal of representative government; but the chief question is: By what test can the best approximate estimate of social value be arrived at? Two different schemes for this purpose have been proposed by John Stuart Mill and Prof. Lorimer respectively—the former founded mainly on intelligence as indicated by instruction, and the latter on wealth and social position. The

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attention of political writers has lately been directed also to the question of the R. of minorities in local communities, which at present are not allowed to contribute an element in representative assemblies. The most feasible scheme for minority R. is perhaps that of Hare, which had the approval of Mill, by which those who do not like the local candidates, are to be allowed to fill up voting papers by a selection from the names of any persons on the list of candidates, with whose general political principles they sympathize. This system, with its other advantages, would, it is supposed, bring into legislative bodies numerous men of able and independent thought, who, by the present system, refrain from offering themselves, as having no chance of election by the majority of any existing constituency. See J. S. Mill, *Representative Government* (1861); Lorimer, *Political Progress not necessarily Democratic* (1857); Hare, *The Election of Representatives* (1860); Walpole, *The Electorate and the Legislature* (1882); Traill, *Central Government*.

In the United States provision has been made by law in several states for the R. of minority bodies. Thus the N. Y. statute prescribing the mode of electing members of the constitutional convention of 1867 provided for the election by the people of 32 members at large, but an elector was permitted to cast his vote for only 16: thus each of the 2 political parties could elect an equal number of the members. In Penn., the constitutional convention act of 1872 provided for a proportional R. of the 2 parties in the election of members of the convention: but in Penn. all the members—those at large and those for the 33 districts—were to be chosen according to this method, viz.: a voter might cast ballots for 14 of the 28 members at large; and for 2 out of 3, or 4 out of 6, of the members from his district. This scheme of 'limited voting' has often been put in practice in other states. A different mode of attaining the same end is the 'free' or 'cumulative' vote. This scheme enables even a small minority of the body politic to obtain R. By it every elector is entitled to a number of votes equal to the number of representatives to be chosen from his district: but he may give them all to one candidate. The method of cumulative voting was proposed for adoption in the Brit. parliament 1867, but was rejected: it has since been put in practice in Britain in the election of local representative bodies. It is embodied in the Ill. constitution of 1870: Art. IV. § 7 prescribes the method of cumulative voting for election of members of the state house of representatives. By the laws of many of the states the same method is required in election of directors and managers of incorporated companies. See **BALLOT: SUFFRAGE: GOVERNMENT** (and references under it).

In the United States the theory is that the senate represents the several *states* as equal individual political entities, while in the lower house the representatives of the *people* appear: thus in the senate all the states, large and small, have an equal representation—each state having 2 senators and no more. In the house of representatives, the people of each state have a R. proportioned in number to the

REPRESS—REPRINT.

population, except that each state, however small, is entitled to R. by one member. The territories of the United States have no R. in the federal senate: to the house of representatives they are entitled to send each one 'delegat'e,' who, however, has no vote. In most of the state legislatures, R. in both of the houses is generally based on population, regard being had, however, to geographical subdivisions, as counties, townships, wards, etc. In some states (e.g., Conn.) the town is in part the basis.—See CONGRESS, U. S.

REPRESS, v. *rě-prěs'* [L. *repressus*, checked, restrained—from *re*, back; *pressus*, pressed, squeezed; *premĕrĕ*, to press]: to put or keep down; to crush; to restrain; to subdue. **REPRESS'ING**, imp. **REPRESS'ED**, pp. *-prĕst'*. **REPRESS'ER**, n. *-ĕr*, one who represses. **REPRESS'IBLE**, a. *-ĭ-bl*, that may be repressed. **REPRESS'IBLY**, ad. *-blĭ*. **REPRES'SION**, n. *-prĕsh'ĭn* [F.—L.]: the act of subduing; check; restraint. **REPRESS'IVE**, a. *-prĕs'iv*, tending or able to repress. **REPRESS'IVELY**, ad. *-lĭ*.—**SYN.** of 'repress': to subdue; overpower; crush; smother; suppress; curb; check; restrain; quell.

REPRIEVE, v. *rě-prĕv'* [OF. *reprover*—from L. *reprobārĕ*, to disallow, to reject (see **REPROBATE**)]: to suspend or delay the execution of a criminal; to grant a respite to; to relieve from any suffering for a time: N. suspension or delay of punishment for a crime; applied chiefly in connection with capital crimes. The U. S. constitution gives the pres. power to grant reprieves. There are several grounds on which the judge or a court may grant R. One is, where the judge is not satisfied with the verdict, or is doubtful of the validity of the indictment; in which case he reprieves the sentence to give time for some appeal. Moreover, a ground of R. acted on as a matter of course, is when the prisoner is a woman pregnant in the sense of being 'quick with child,' and pleads that fact; in which case execution of the sentence is delayed until after her delivery. This was the law of ancient Rome; and nothing connected with the memory of Queen Mary in her persecution of the Protestants is more detestable than the burning in her reign of a pregnant woman in Guernsey, when the child, which was born at the stake, was cast into the fire as a young heretic. Another cause of R. is the insanity of the prisoner, whether the insanity supervened after the crime or not. **REPRIEV'ING**, imp. **REPRIEV'ED**, pp. *-prĕvd'*.

REPRIMAND, v. *rĕp'rĭ-mănd'* [F. *réprimander*, to reprimand—from L. *reprimen'dus*, to be curbed or restrained—from *re*, back; *premo*, I press]: to administer a severe reproof or rebuke to for a fault, either in private or in public; to chide or reprove; to censure; to admonish: N. severe reproof or censure for a fault. **REP'RIMAND'ING**, imp. **REP'RIMAND'ED**, pp.—**SYN.** of 'reprimand, v.': to rebuke; censure; blame; reprove; reprehend; chide; reproach; upbraid; animadvert.

REPRINT, v. *rě-prĭnt'* [*re*, again, and *print*]: to print a second or new edition: N. *rĕ'prĭnt*, a second or new edition of a book. **REPRINT'ING**, imp. **REPRINT'ED**, pp.

REPRISAL—REPROBATE.

REPRISAL, n. *rè-prī'zāl* [F. *représaille*, retaliation—from It. *ripresaglia*: L. *reprehen'sus*, held back, seized (see **REPREHEND**)]; retaking, from an enemy, goods which he has seized; or capture from him of other goods, as equivalent for the damage that he has wrought. **LETTERS OF REPRISALS**, same as Letters of Marque (q.v.).

REPRISE, n. *rè-prīz'* [F. *reprise*, a retaking: L. *reprehen'sus* or *reprehen'sus*, taken or held back (see **REPREHEND**)]: a ship retaken from an enemy or pirate; if recaptured within 24 hours of the hostile seizure, she must be wholly restored to her owners; if later, she is the lawful prize of her recaptors: in *arch.*, the return of moldings in an internal angle; in *OE.*, the act of taking something by way of retaliation: V. in *OE.*, to take again; to recompense. **REPRI'SING**, imp. **REPRISED'**, pp. *-prīzd'*. **REPRI'SES**, n. plu. deductions and payments made annually out of lands, as rent.

REPROACH, v. *rè-prōch'* [F. *reprocher*; prov. F. *repropchar*; Sp. *reprochar*, to reproach, to blame—from a supposed mid. L. *repropūārē*, to lay before one's eyes, to blame—from L. *prope*, near: also mid. L. *reprochārē*, to charge with crime]: to pass censure upon in contemptuous terms; to upbraid; to charge with a fault in severe language: N. censure mingled with contemptuous language; severe reproof; infamy; object of contempt or scorn; that which is the cause of shame. **REPROACH'ING**, imp. **REPROACHED'**, pp. *-prōcht'*. **REPROACHER**, n. *-er*, one who reproaches. **REPROACH'ABLE**, a. *-ā-bl*, capable of being reproached. **REPROACH'ABLY**, ad. *-bli*. **REPROACH'ABLENESS**, n. *-bl nēs*, the state of being reproachable. **REPROACH'FUL**, a. *-fūl*, containing or expressing reproach; bringing or casting reproach; upbraiding; scurrilous; base. **REPROACH'FULLY**, ad. *-lī*, in a reproachful manner; scurrilously; ignominiously. **REPROACHFULNESS**, n. *-nēs*, the quality of being reproachful. **REPROACH'LESS**, a. *-lēs*, without reproach.—**SYN.** of 'reproach, v.': to rebuke; censure; blame; upbraid; revile; vilify; condemn;—of 'reproach, n': discredit; scandal; dishonor; contempt; insult; scorn; disgrace; infamy; shame; disrepute; opprobrium; invective; abuse; reviling; scurrility; insolence; contumely; sarcasm.

REPROBATE, a. *rèp'rō-bāt* [L. *reprobātus*, censured, reprov'd; *reprobārē*, to disapprove—from *re*, again; *probārē*, to test]: wholly given up to sin; lost to virtue or grace; depraved; abandoned; rejected: V. to disapprove with marks of extreme dislike; to give up to destruction without hope of pardon: N. a person given up to wickedness; one lost to virtue and religion. **REP'ROBATING**, imp. **REP'ROBATED**, pp.: **ADJ.** rejected; abandoned. **REP'ROBATENESS**, n. *-nēs*, the state of being reprobate. **REP'ROBA'TION**, n. *-bā'shūn* [F.—L.]: the act of disallowing with abhorrence; in *theol.*, state of being consigned or abandoned to destruction without hope of pardon—the opposite of *election*. **REP'ROBA'TIONER**, n. *-ēr*, one who holds that part of the human race were created for reprobation.—**SYN.** of 'reprobate, a.': abandoned; profligate; vile; base; vitiated; depraved; castaway; corrupt; wicked.

REPRODUCE—REPRODUCTION.

REPRODUCE, v. *rě'prō-dūs'* [*re*, again, and *produce*: F. *reproduire*: Sp. *reproducir*]: to form anew in whole or in part what has been cut off or lost; to generate, as offspring. **RE'PRODU'cing**, imp. **RE'PRODUCED'**, pp. *-dūst'*. **RE'PRODU'cer**, n. *-sēr*, one who or that which reproduces. **RE'PRODUC'tive**, a. *-dūk'tiv*, pert. to or used in reproduction; generative. **RE'PRODUC'tion**, n. *-shūn* [F.—L.]: the act or process of renewing that which has been lost or destroyed; generation; that which is reproduced.

REPRODUCTION IN ANIMALS: propagation of organized beings in the animal kingdom. R. is by three different processes. The first of the three modes of multiplication of individuals is the division of one organism into two; each of these, again, dividing into two others, and so on: this is termed *R. by fission*. The second mode of R. is the formation of a bud at some part of the body of the animal: this bud gradually approximates in form to that of the parent from which it springs; its pedicle or stem gradually disappears; and the liberated bud ultimately assumes a perfect form, resembling in all respects the parent from which it sprang: *R. by gemmation*. The third mode is far the most complicated: in it the new organism results from a series of changes occurring in an impregnated egg or *ovum*. For this process, distinct sexual organs, both male and female, are required; which, however, may be associated in the same individual, though in all the higher animals they occur in distinct individuals—a female organ for the production of cells termed 'germs,' and a male organ for the production of certain cells termed 'spermatozoa.' It is from the union (either within or without the body) and the mutual action of these cells—the germ and the spermatozoon—that the

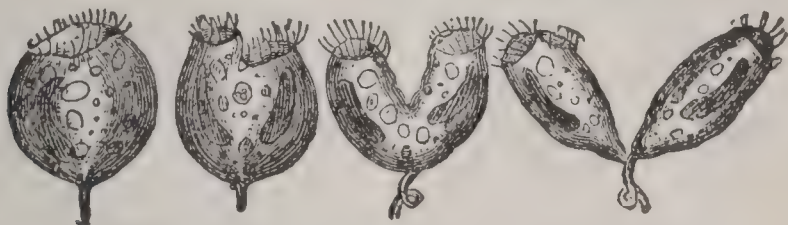


Fig. 1.—Longitudinal Fission of Vorticella.

impregnated ovum results. The new resulting body is altogether different from either of the cells which took part in its production. This is the ordinary form of R. in all the higher animals, and may be termed *true generation*, in contradistinction to the previous forms of *reproduction by multiplication*. The terms *Digenesis* and *Heterogenesis* have been applied by recent physiological writers to designate the form of R. in which the contact of germs and spermatozoa gives rise to fecundation; while the germs *Monogenesis* and *Homogenesis* have been similarly applied to the cases in which non-sexual R. takes place by fission or gemmation.

Fissiparous multiplication is illustrated by reference to the Infusoria. It may be either longitudinal, as usual in *Vorticella*; or transverse, as in *Stentor*; or indifferently

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longitudinal or transverse, as in *Chilodon*, *Paramecium*, etc. The joints of tape-worms multiply in this manner, and when sufficiently developed become free. Among some of the Annelids or true worms, also, R. of this kind in somewhat modified form is observed. This was noticed first in a *Nais* by the Danish naturalist Müller, by whom it was regarded as rare and accidental. Researches of De Quatrefages and Milne-Edwards have shown that the process is far more significant than Müller supposed. In the genus *Syllis*, De Quatrefages noticed the following appearances: When one of these worms is about to reproduce itself by fission, a number of rings become developed at its posterior extremity, and there is a notch or groove between the first of these rings and the part in front of it. The first ring soon becomes organized into a head provided with eyes and antennæ. The two annelids, parent and offspring, continue, however, to be united by the skin and intestine in such a manner that the latter animal lives solely on

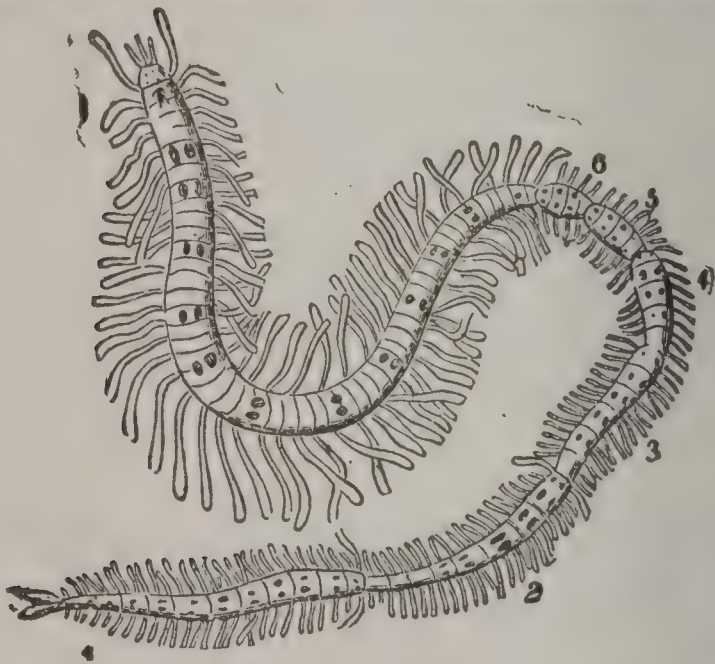


Fig. 2.—*Myriana*, with six new individuals formed on it.

the food swallowed by the former. During this period, each possesses independent life, for a struggle may often be observed between the two, each wishing to go its own way. After a certain time, the body of the offspring becomes distended with ova in some cases, and with spermatozoa in others, while neither of these structures is seen in the body of the primary animal. Complete division is at length effected, and the offspring is free. In a few days, however, their bodies burst, from the distention caused by their contents. Ova and spermatozoa are thus diffused through the water, and fecundation thus takes place. In the genus *Myrianida* (*Autolytus*, according to Grube's classification), Milne-Edwards has seen no less than six new individuals (instead of a single one, as in *Syllis*) formed in gradual succession, one before the other, between the two terminal seg-

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ments of the original body. Each of these new individuals, as it arrived at maturity, and acquired the external form (in reduced dimensions) of the parents, was found to be possessed of reproductive organs, of which the original animal was totally devoid. The youngest and smallest individual is the most remote from the tail.

In these instances, multiplication by division occurs as a *natural* process, but there are many cases in which *artificial* division gives rise to multiplication. Bonnet having found that a certain kind of small worm, when cut in two, reproduced a tail at the cut extremity of the cephalic half, and formed a head upon the caudal half, increased the number of sections, and finally succeeded in dividing one worm into 26 parts, almost all of which acquired a head and tail, and thus became distinct individuals. Corresponding results may be obtained by dividing a planaria or actinia into many segments.

Reproduction by gemmation is a phenomenon very frequent in the lower departments of the animal kingdom. In the lowest of the animal sub-kingdoms, the PROTOZOA it occurs in the *Rhizopoda*—viz., in the *Foraminifera* in the *Spongiæ*, being probably the most common form of R. in sponges; and in the *Infusoria*, e.g., in *Vorticella*. In the CŒLENTERATA, it is of almost general occurrence in the classes *Hydrozoa* and *Actinozoa*; and in the MOLLUSCOIDS it occurs in *Polyzoa* and in *Tunicata*. In the accompanying figure (fig. 3), the process is shown as it occurs in the *Hydra fusca*, a fresh-water hydra (type of the *Hydrozoa*). If some hydras are kept for a few days in a glass of their native water, knot-like excrescences will be seen on their bodies. These are the buds or *gemmæ*, which rapidly enlarge, and each by degrees assumes the appearance of a young hydra, tentacles appearing about the mouth, just as in the original animal. For some time, a portion of the food (minute infusoria, entomostraca, etc.), caught and digested by the parent, passes into the body of the offspring; but when the tentacles are sufficiently developed, the young polyp catches food for itself; and when it is sufficiently matured to commence an independent existence, the connecting pedicle gives way, and the young animal is free and independent, its posterior aperture of communication soon closing.

It must be distinctly understood that the fact of an organism reproducing itself by fission or gemmation does not by any means exclude the possibility that it may be reproduced also by fecundated ova. That this is the case is indeed shown in the instance of the

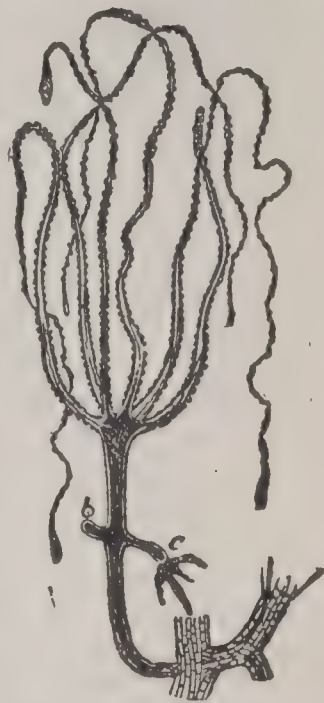


Fig. 3.—*Hydra fusca*, with a young bud at *b*, and more advanced bud at *c*.

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worm *Myriana*. The Hydra, too, increases by ova, and it may be cut in pieces, each of which becomes a perfect animal. Other corroborative cases might be given.

In *true generation*, two special organs are required—a female organ for producing the germ-cell or ovum, and a male organ for producing the sperm-cell or spermatozoon; and each form of generative apparatus consists of two parts, of which one is a formative organ—in the female termed an *ovarium*, or *ovary*, and in the male a *testis*—in which the reproductive cells are formed, and which is essential; and an efferent duct, by which the products of secretion are carried off. The male and female organs may exist in separate individuals, or they may co-exist in the same individual, giving rise to the condition known as *Hermaphroditism* (q.v.). The former condition is termed *bisexual* or *diœcious*, and the latter *unisexual* or *monœcious*. For a general description of the changes which take place in the impregnated egg, see DEVELOPMENT OF THE EMBRYO.

The following briefly outlines the mode or modes of R. in the different classes of animals, beginning with the lowest.

In the sub-kingdom PROTOZOA, R. is usually by fission, occasionally by gemmation; but no satisfactory instances of true sexual propagation by means of ova and spermatozoa are known, those cases described in certain Infusoria not having been confirmed by subsequent observers. It is worthy of notice that in the Infusoria, propagation is effected in no less than three different ways—viz., by the two processes already described, and by a process known as ‘encystation.’ See INFUSORIA.

In the sub-kingdom CœLENTERATA, it is found that both the Hydrozoa and the Anthozoa multiply by gemmation, by a true reproductive process, and in a few genera by fission.

In the ECHINODERMATA fission has been observed in one class, the Holothuroidea, which, moreover, have distinct sexual organs combined in the same individual. In the other classes—the Echinoidea, Asteroidea, and Crinoidea—the sexes are separate, and generation takes place only by the union of germs, or ova and spermatozoa. In the ANNELIDA, true generation takes place, though, as above shown, multiplication is sometimes by fission. In the lower Mollusca or Molluscoids, multiplication is by gemmation and by true generation; while in the higher Mollusca, multiplication takes place only by true generation.

In the ARTICULATA—Insects, Crustaceans, etc.—distinct generative organs are always present; and, except in one class of Crustaceans—the Cirrhopoda—the sexes are distinct.

In the VERTEBRATA is found the highest and most complex development of the generative function. In them, with a doubtful exception in the case of one or two genera of fishes, the sexes are always distinct.

The osseous and cartilaginous fishes present important

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differences in their reproductive organs and modes of R. In the osseous fishes, the essential female organ—the ovary, or roe—consists of a large membranous bag, usually in two lobes, sometimes single. When distended with ova, this organ fills the greater part of the abdominal cavity, and its lining membrane is arranged in folds, wherein the ova are formed and retained until ripe for expulsion. They then escape into the ovarian cavity, and are expelled in almost incredible numbers through a special opening immediately behind the anus and in front of the urinary canal. As a general rule, the ova of fishes are impregnated after their expulsion; and in order that the impregnation of a sufficient number of eggs may be secured, the male secretion of fishes—the fluid containing the spermatozoa—is very abundant; the male secreting gland, which in fishes is termed ‘the milt’ or ‘soft roe,’ being equal in bulk to the ovary of the female. In a few instances, however, the young are hatched in the ovary, and grow to a considerable size before they are born, and in these cases—e.g., in the viviparous blenny—impregnation must take place internally. In the cartilaginous fishes—as the sharks and rays—the generative organs are of higher type. The eggs are here always impregnated within the body of the female, the male having special organs by which true sexual congress is effected, and the ovaries form two large racemous bunches on either side of the spine. The eggs are large in size, and comparatively small in number; and as each egg escapes from the ovary, it is seized by a true oviduct, which furnishes it with additional protective coverings. About the middle of this tube ‘there is a thick glandular mass, destined to

secrete a horny shell, in which the yolk and white of the egg become incased. The egg, when completed, has somewhat the shape of a pillow-case, with the four corners lengthened out into long tendrill-like cords, whereby the egg is entangled among the sea-weed at the bottom of the ocean. A brittle egg-shell would soon be destroyed by the beating of the waves; hence the necessity for the corneous nature of the envelope; and yet how is the feeble embryo to escape from such a tough and leather-like cradle? This likewise has been provided for. The egg remains permanently open at one extremity; the slightest pressure from within, therefore, separates the valvular lips of the opening, and no sooner has the little shark thus extricated itself from its confine-



Fig. 4.—The Egg of Cartilaginous Fish, opened so as to show the young animal.

rates the valvular lips of the opening, and no sooner has the little shark thus extricated itself from its confine-

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ment, than the two sides close so accurately, that the fissure is imperceptible.'

In the *Amphibia* or *Batrachia*, the sexes are more closely associated than in the osseous fishes, the ova being generally impregnated as they escape from the oviduct. The mode of R. of some amphibians is remarkable and anomalous. See PIPA.

In the true *Reptiles*, the male sexual organs become more perfect, adaptations being supplied to facilitate the impregnation of the female.

In *Birds*, the generative organs present close analogy to those of the higher reptiles. There is only a single ovary (the left) that has a bunch-like or racemous appearance; the right, with its oviduct, being always atrophied or rudimentary—a remarkable violation of symmetry, resembling that which occurs in the lungs of serpents. As prolonged utero-gestation would be incompatible with flight, incubation here attains its fullest development.

In *Mammals*, a new organ for the first time appears, from which that important class derives its name. In most of them (see MAMMALIA: PLACENTA), a temporary organ also, the Placenta, is formed, by which the fetus is nourished during uterine existence.

Huxley's *Comp. Anat. of Invertebrated Animals*, p. 27; and Balfour's *Comparative Embryology*.

REPRODUCTION IN PLANTS: propagation of organisms in the vegetable kingdom. See PLANT: VEGETABLE PHYSIOLOGY: FECUNDATION. Reproduction, so far as known, is by fission and more rarely internal self-division in the Protophytes, much as in Protozoa: budding in these low organisms is a modification of fission. Above these come the Zygosporcs [Gr. *zugos*, yoke], in which two sexual cells, mostly without observable difference, unite to produce a thick-walled 'resting spore' (zygosporc), which continues through drought or winter. Of this division is the class named from its zoosporcs, or locomotive sexual cells, including the curious 'water-net,' common in ponds; the *Conjugatæ*, in which there is distinct conjugation of the entire mature plant, as in desmids and diatoms, or a commingling of the contents of conjugated cells on two filaments, as in *Spirogyra* (the pond-threads with spiral chlorophyl), order *Zymenacæ* and the Mucor type of molds, which also produce asexually in terminal cells (*conidia*). The Oosporcs, next, develop a large cell, *oogonium*, containing *oosphores*, which are fertilized by either the protoplasm or motil spermatozoids issuing from another special smaller cell, *antheridium*, and produce a resting oosporc: the classes differ greatly in size and structure, including the small gobular colony Volvox; the filamentous *Edogoniæ*, forming green fringes on sticks in water and developing intercalary sexual cells; the similar but tubular Cæloblasts, like Vaucheria, with outgrowing sexual cells; the similar but colorless parasitic *Saprolegniaceæ*; the Peronosporc molds or mildews, germinating in the cells of higher

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plants, such as grape and potato vines; and the Fucaceous sea-weeds, sometimes gigantic. The Carpospores form various antherids, and a sporocarp, containing one or more spores, and with a more or less complex envelope (fruit-like, hence the name, from Gr. *karpos*, fruit), and include the class *Coleochaete*, small fresh-water masses of radiating filaments; the class *Florideæ*, red and violet sea-weeds, the spermatozoids of which float about until they come in contact with *carpogonia*; the class *Ascomycetes* [Gr. *askos*, sac], including various molds, the edible morel, black-knot, lichens, rusts and smuts; the *Basidiomycetes*, fungi; and the *Characeæ*, stoneworts, certain aquatic plants with stem and leaves—a high advance in form, with the same essential style of reproduction as rust and smut. Next above are the Bryophytes, comprising liverworts and mosses, with alternations of sexual and asexual generations, for the details of which see HEPATICÆ: MOSSES. Following these are the Pteridophytes, with similar alternations, but with much higher development of tissues: see EQUISETACEÆ: FERNS. In the highest branch, *Phanerogamia* (see PHANEROGAMIC,) flowering plants, the pollen-grain produced by the stamen, meeting the stigma of the pistil, sends down a tubular prolongation of itself to the embryonic vesicle, and a seed results, which differs from a spore in the development within it of an embryo plant. For details, see VEGETABLE PHYSIOLOGY.

Many flowering plants are fertilized by their own pollen; in most cases the wind is the agent, and the plants and flowers are not lacking in beauty (see Justice Edward Fry, *Contemporary Review*, 1879–80, on *Utility to Flowers*, etc.). In plants that have two kinds of flowers, one kind showy, the other hidden (*Cleistogenous*, q.v.), the latter are most prolific. Still, many plants are dependent on insects for cross-fertilization, which has been proved by experiment with some plants to be highly advantageous in producing vigorous offspring; and, in not a few instances, the position of stamen and pistil, or the former not coming to maturity, or else not at the same time with the latter, renders the plant dependent on insects for any fertilization at all. Sprengel, in the end of the 18th c., observed some of these facts, and they were studied by Charles Darwin (q.v.), and set forth in several of his works. While he found no adaptation to insects in some orchids, for example, in others he traced the most elaborate contrivances for this agency. Thus in one species, *Catasetum saccatum*, when an insect lights on the lip of the male flower, and touches an irritable horn of the hood, the irritability is at once conveyed to the hidden curved stamen, which springs out, and its pollen strikes the head of the insect. In many common plants of Europe and America, arrangements as certain if not as curious are found for the same purpose. As to beauty, Darwin claimed only that flowers have become ‘beautiful, or rather conspicuous. in con-

REFROMULGATE—REPTANT.

trast with the greenness of the leaves,' to attract insects. This is not the same teaching as that of others, e.g., Lubbock, that the shape, colors, honey, and scent of flowers, all are due to the selection exercised by insects. This was well answered by the late Dr. Asa Gray, himself an evolutionist, in the *Contemporary Review* (1882); see summary in H. W. Parker's *Spirit of Beauty*, pp. 63-64. Dr. Gray made a distinction between insect-produced and insect-educed beauty. Darwin, with his characteristic candor, speaks of insects finding their way to minute nectar-glands on leaves, to small and dingy flowers, and as indifferently visiting the variously colored flowers of the same species, or after the petals had fallen; and he observed bees paying no attention to flowers during the intervals when the sun was not shining, so as to bring out the odor. The heavenly combinations, harmonies, and delicate perfections of beauty in many flowers have no explanation in the senses and supra-oesophageal ganglia of insects. Besides, there is abundant beauty in leaf, stem, fungus, moss, sea-weed, and microscopic features, with which insects have nothing to do.

REFROMULGATE, v. *rě'prō-mŭl'gāt* [*re*, and *promulgate*]: to promulgate again.

REPROOF: see under REPROVE.

REPROVE, v. *rě-prōv'* [F. *réprouver*, to reject, to disallow—from L. *reprobārē*, to condemn (see REPROBATE)]: to reprimand; to chide; to blame or censure; to rebuke. REPROV'ING, imp. REPROVED', pp. *-prōvd'*. REPROV'ER, n. *-ēr*, one who reproves. REPROV'ABLE, a. *-prōv'ă-bl*, deserving censure; blamable. REPROV'ABLY, ad. *-bĭ*. REPROV'INGLY, ad. *-ĭ*. REPROOF', n. *-prōf'*, blame expressed to the face; censure; in *OE.*, slander.—SYN. of 'reprove': to blame; censure; check; chide; reprehend; refute; rebuke; scold; reprimand;—of 'reproof': rebuke; censure; blame; admonition; reprehension; chiding.

REPRUNE, v. *rě-prôn'* [*re*, again, and *prune*]: to prune a second time.

REPTANT, a. *rěptănt* [L. *reptans* or *reptan'tem*, creeping, crawling; *reptārē*, to creep (see REPTILE)]: in *bot.*, creeping. REPTATION, n. *rěp-tă'shŭn*, in *zool.*, the act of creeping or crawling.

REPTILE.

REPTILE, n. *rěp'tíl* [F. *reptile* ; It. *rettile* ; Sp. *reptil*, a reptile—from L. *reptilis*, creeping—from *reptārē*, to creep along, to crawl; *repo*, *serpo*, I creep: Gr. *herpō*, I creep]: an animal that creeps on its belly, or moves along by means of short legs, as snakes, lizards, etc. ; a grovelling mean creature: **ADJ.** moving on the belly, or by means of small feet or legs. **REPTILIA**, n. plu. *rěp-tíl'ĩ-ă*, the systematic name for the cold-blooded vertebrate animals that never possess gills—including tortoises, snakes, lizards, and crocodiles. **REPTIL'IAN**, a. *-ĩ-ăn*, belonging to the reptiles or reptilia: N. one of the reptilia.—*Reptiles* are a class of Vertebrates distinguished from Amphibians (q.v.) by never possessing gills, but by breathing by lungs throughout life, by the usual presence of an exoskeleton, by possession of only one occipital condyle, and by numerous other characters—chiefly osteological. They agree in structure much more closely with birds, which Huxley has shown to present only a modification of the reptilian type, and with which he has accordingly united them into the group *Sauropsida*. They are distinguished from birds chiefly by the exoskeleton taking the form of scales or scutes, but never of feathers, by the forelimb possessing more than three digits, by the slight development of the pelvis, the separateness of the metatarsal bones, and the cold blood. They are divided into nine orders, of which the first four only exist at the present day, and the remaining five are extinct: 1. *Lacertilia* (lizards, chameleons, blind-worms, etc.); 2. *Crocodylia* (alligators, crocodiles, gavials); 3. *Ophidia* (snakes); 4. *Chelonía* (tortoises and turtles); 5. *Ichthyosauria* ('fish-dragons'); 6. *Plesiosauria* (the so-called 'swan-dragons'); 7. *Dicynodontia* (with walrus-like teeth); 8. *Pterosauria*, or pterodactyls (the so-called 'flying dragons'); and 9. *Ornithoscelida*, or bird-like reptiles (iguanodon, etc.), which were almost perfectly intermediate between the ordinary reptiles and the birds.

Except the tortoises, the reptiles in general are of elongated form, the body being often nearly cylindrical, and usually terminating in a very long tail. In a considerable number (as the serpents and some of the lizards), no traces of limbs are apparent; in some (as certain lizards), the limbs are rudimentary; while in the remainder the limbs are fully developed, though not to the extent to which development takes place in birds or quadrupeds, as the feet rarely suffice to keep the belly from the ground. The outer covering of the body presents several well-marked varieties. In a few of the lizards, the skin is covered with regular scales, composed of a mixture of bony and horny matter, and lying over each other like those of fishes; in most lizards and in serpents, there are scales and plates developed on the surface of the corium or true skin, and covered over with epidermis, which is thrown off at intervals, the moult forming an accurate cast of the body of the animal; while in the crocodiles and tortoises the scales are con-

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verted into true bony plates, which in the former are embedded in the tissue of the skin, and in the latter are united with the ribs, sternum, etc., of the internal skeleton, to form the complete bony case into which the head and limbs of the animal can be retracted.

The skeleton is completely ossified in all reptiles, and presents to the philosophical anatomist many points of interest, for which space here is lacking. In the skeleton of the crocodiles and lizards, there is an obvious distinction of the regions of the neck, trunk, and tail. The total number of vertebræ is often great, but it is

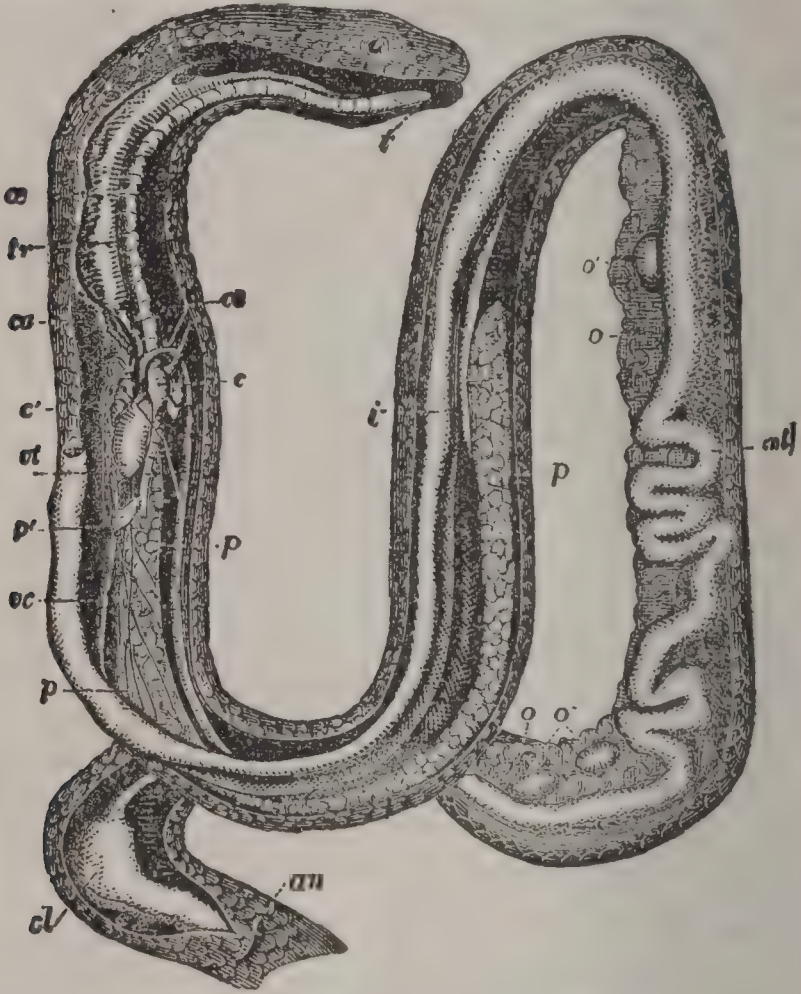


Fig. 1.—Anatomy of a Serpent.

t, tongue and glottis; *æ*, oesophagus (partly removed to show heart, etc.); *tr*, trachea; *ca, ca*, carotid arteries; *c*, left auricle; *c'*, right auricle; *vt*, ventricle of heart; *vc*, vena cava inferior; *p, p*, principal lung; *p'*, rudimentary lung; *i*, stomach; *int*, intestines; *cl*, cloaca; *an*, anus; *o*, ovary; *o'*, ova.

chiefly in the caudal region that the excess occurs; there being 36 caudal vertebræ in the crocodile, and 115 in the monster lizard. In the serpents, the vertebral column is more abundantly sub-divided than in any other animal; the number of vertebræ in the python being 422, of which about six-sevenths possess ribs articulated to their bodies by a ball-and-socket joint. By the motion thus allowed to the ribs, they become in some degree instruments of progression. In the reptiles generally (excepting the tortoises), one surface of each centrum (or body) of the vertebræ is concave, and the

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other convex; while in the tortoises these surfaces are flat. The true skull is small, the bulk of the head being made up by the jawbones. As the sutures separating the individual bones never become obliterated, the reptilian skull is well adapted to illustrate the true structure of the vertebral skeleton. In fig. 3 is the skull of the crocodile; in fig. 4, that of a serpent; and in both, the corresponding bones are indicated by the same

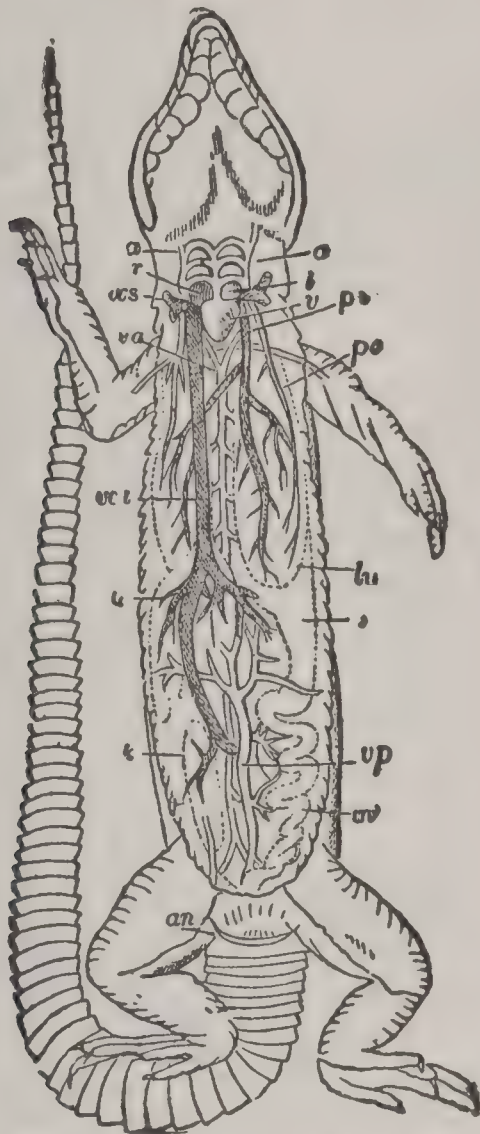


Fig. 2.—Anatomy of Lizard:

a, a', arches of the aorta; **r**, right auricle; **l**, left auricle; **v**, ventricle; **vcs**, vena cava superior; **vci**, vena cava inferior; **va**, ventral aorta; **pv**, pulmonary veins; **pa**, pulmonary arteries; **lu**, lung; **li**, liver and hepatic vein; **k**, kidneys and renal vessels; **vp**, vena portæ; **s**, stomach; **int**, intestines; **an**, anus.

references. 1 is the *principal frontal*, divided in the serpent into two parts; 2, 2 are the *anterior*, and 4, 4 the *posterior frontals*; 7 is the *parietal bone*, usually single in reptiles; 12, 12 are the *mastoid bones* (homologous to the mastoid process in man); 17, 17 are the *intermaxillaries*; 18, 18 are the *maxillaries*; 20, 20 are the *nasals*; 23 is the *temporal bone* (corresponding to the squamous portion of the human bone); 34, 35, 36, 37 are the *dental*, the *articular*, the *angular*, and the *opercular* portions of

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the *inferior maxilla*, or lower jaw; *a* is the *tympanic bone*, which supports the drum of the ear; *b* is the *zygomatic* or *malar bone*; and *c, c* the *lachrymals*. The lower jaw (except in the tortoises) presents the peculiarity of being composed of a number of separate pieces; there being four or five in each half-jaw in serpents, while in croco-



Fig. 3.—Skull of Crocodile.

iles and lizards each half is divided into at least five, and generally six pieces, which are united by suture. The four most important of these are shown in fig. 3. The purpose of this arrangement is probably (as Dr. Buckland suggested in his *Bridgewater Treatise*) to diminish the risk of fracture, which would otherwise attend the snapping together of their elongated jaws.

The bones of the extremities, except in the serpents, which have no limbs, correspond with those occurring in the higher Vertebrata.

The mouth, except in the Chelonians, is usually provided with conical teeth, adapted rather for seizing and holding prey, than for dividing and masticating food.



Fig. 4.—Skull of Serpent.

These teeth, like those of fishes, are successional; that is to say, new teeth are being constantly developed, while the older ones are regularly shed. In the crocodiles, three or even four generations of teeth, sheathed one within the other, may often be seen in the same socket. In some instances, the teeth are attached solely to the jaws, while in others they are attached also to the pterygoid or palate bones. In Chelonians, the teeth are replaced by a horny beak, which, according to the habits of the animal, is adapted for bruising as well as

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cutting, and which in some species constitutes a somewhat formidable weapon.

The digestive organs present less marked differences than the osseous system. With the exception of certain Chelonians, all reptiles are carnivorous, and swallow their prey whole. Hence the jaws are adapted, by their mobility and sub-division into segments, to open very widely, and the œsophagus is capable of great dilatation. The tongue is commonly free, elongated, and bifid, except in the crocodiles, in which it is immovable; whence the popular idea that these animals do not possess this organ. The stomach is sometimes scarcely larger than the œsophagus and intestines (as in serpents), while in other cases it forms a sac of considerable size. In either case, it is capable of great dilatation. A liver, pancreas, and spleen are always present, the two former glands pouring their secretions into the upper part of the intestine, which is short, wide, and not much twisted, and divided into two portions, corresponding to the small and large intestines of mam-



Fig. 5.—Section of the Lung of the Turtle (reduced).

mals, by a valve. It terminates in a wide cloaca, into which the ducts of the urinary and generative organs usually open. The anal aperture of this cloaca is *transverse* in serpents and lizards, and *longitudinal* in crocodiles and tortoises. These peculiarities in the anal aperture are accompanied by remarkable differences in the external generative organs of the male, and seem to divide the class into two great sections.

It is in their circulating and respiratory organs that reptiles present the most marked characteristics. Like birds and mammals, they breathe air; but like fishes, they are cold-blooded. The reason why they are unable to sustain a fixed temperature above and independent

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of that of the surrounding medium is due partly to the arrangement of the blood-vessels (see CIRCULATION), and partly to the structure of the lungs. The lungs are usually of large size; but as they are not sub-divided, as in mammals and birds, into innumerable microscopic air-cells, the real aërating surface is comparatively small. In several orders, they are merely capacious bags, whose vascular or aërating surface is but slightly increased by sacculi developed in their cells. In serpents, the pulmonary arrangement is singular, one lung (usually the right one) being of extraordinary length, while the other remains altogether rudimentary. It is in the tortoises and crocodiles that the lung is most highly developed; but if the reader will compare the accompanying figure of the lung of the turtle with a section of any mammalian lung, he will at once perceive the striking difference. This inferiority of the respiratory apparatus of reptiles is further shown in the absence of those means for continuous introduction and expulsion of air which are observed in birds, and still more in mammals (see RESPIRATION).

The cerebral portion of the *nervous* system in many respects resembles that of fishes, but the cerebral hemispheres are larger in proportion to the optic lobes, while the cerebellum is usually smaller.

The organs of the senses are better developed than in fishes. The eye is always present in reptiles, and presents no remarkable peculiarity. We here first meet with a special arrangement for protection of this delicate organ; 'for while in serpents the skin of the head passes continuously in front of the eyes, merely becoming transparent where it covers the cornea, it is doubled in most other reptiles into two folds, constituting the upper and lower eyelids, which can be drawn together by a sphincter muscle; and we also find a rudiment of a third eyelid, formed by an additional fold of membrane at the inner angle, which is so completely developed in crocodiles as to form a nictitating membrane, that can be drawn completely across the eye, as in birds, by a muscle specially adapted for that purpose.'—Carpenter's *General and Comparative Physiology*, 3d ed. p. 495.

The organ of hearing is more highly developed than in fishes or amphibia. There is no external auditory canal, the membrane of the tympanum being covered externally by the integument of the head. The senses of taste and touch are probably obtuse in most animals of this class, and from its structure the tongue is conjectured to be rather an organ of touch than of true taste.

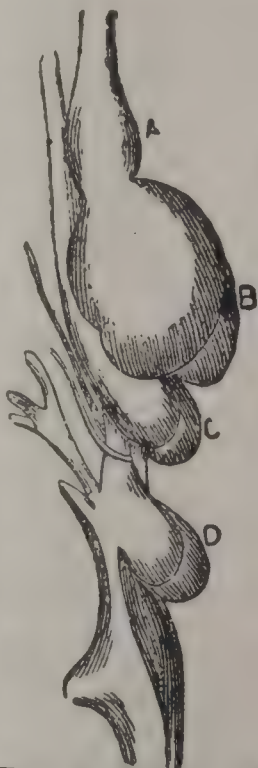


Fig. 6.—Brain of Turtle:

A, olfactory ganglia; B, cerebral hemispheres; C, optic ganglia; D, cerebellum.

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All reptiles are *oviparous* animals. Certain species, however, retain their ova in a sort of uterine cavity, formed by dilatation of the oviduct near its termination in the cloaca, until the development of the embryo is so far advanced that the enveloping membrane bursts previously to the expulsion of the ova, so that the young are actually born alive—a mode of production to which the term *ovo-viviparous* is applied. The eggs are relatively large, and are furnished with a very large yolk, for the nutrition of the young animal. They are inclosed in a parchment-like shell, which contains very little calcareous matter. They are usually deposited in warm, sandy places, well exposed to the sun, or in dunghills, in which the heat induced by the putrefactive process facilitates the final stage of embryonic development. Lizards lay 8 to 12 eggs, serpents 10 to 50, tortoises 20 to 26, and crocodiles 20 to 60. In this respect they differ widely from the amphibia, some of which lay as many as 1,200 eggs. The common opinion that, after the expulsion of the eggs, the reptiles take no further care of their progeny, is erroneous. Crocodiles and lizards have been observed to watch the places which they have chosen as their nest; and the pythons (at all events, when in captivity) coil themselves around their eggs, and keep up a temperature considerably above that of the surrounding medium. The sexes are always separate; and the male generative organs, far more highly developed than in amphibians, present peculiarities which, in association with the position of the anal aperture, have been adopted by zoologists as a basis of classification.

In relation to their *habitat*, it may be observed that most of the tortoises and certain serpents are essentially aquatic animals (some inhabiting fresh, and some salt water), which rarely seek the land except to lay their eggs. Serpents, however, as a general rule, affect moist places in the neighborhood of water, though some are inhabitants of dry, sandy deserts. Lizards mostly frequent the sandy districts of hot and tropical regions, and either burrow in the ground or live in holes in trees, walls, etc. Reptiles generally predominate in the warmer regions of the globe, in which alone the largest kinds are to be found. In the northern countries, comparatively few species are found, and these pass a great portion of the year in Hibernation (q.v.) or torpidity. Dr. Carpenter assigns 2,000 as about the probable number of existing species of reptiles. Schinz states that in Europe there are 7 tortoises, 33 serpents, and 35 lizards. See Duméril and Bibron, *Erpétologie Générale, ou Hist. Nat. Complète des Reptiles* (Paris 1834-54, 9 vols); also (for summary) Huxley, *Anatomy of Vertebrated Animals* (London 1871).

REPUBLIC.

REPUBLIC, n. *rě-pŭb'lik* [F. *république*; It. *repubblica*, a republic — from L. *respub'licā* — from *res*, a thing; *publicus*, belonging to the people]: state or country in which the supreme power is vested in rulers elected periodically by the people; a commonwealth. **REPUB'LICAN**, a. *-lĭ-kān*, pert. to a republic; consonant to the principles of a republic: N. one who favors or prefers the government of a republic. **REPUB'LICANISM**, n. *-izm*, attachment to a republican form of government; the principles on which it is founded. **REPUBLIC OF LETTERS**, a term applied to the whole body of literary and learned men.—A *Republic* is a political community in which the executive function is committed to a person or persons elected in some manner by the body of citizens entitled to vote. According to a very loose definition, a R. may vary from the most exclusive oligarchy to a pure democracy; but the term R. is not usually thus applied. The several republics of Greece and that of Rome were, at the outset at least, aristocratic communities. The mediæval republics of Venice, Genoa, and the other Italian towns also were more or less aristocratic: the sovereign power was held to be vested in the franchised citizens; and every function—legislative, executive, or judicial—not exercised directly by that body, could be exercised only by parties deriving their authority from it. But the extent of the franchise, and the mode of exercising it, varied much in these civic communities; and the most prosperous and long-lived was Venice, which was also the most aristocratic of them all. In the 16th c., the Seven Provinces of the Netherlands, on their revolt from Spain, adopted a republican form of government, as did Switzerland on becoming independent of the German empire. Great Britain was nominally a R. for eleven years (1649 to 60). France was a R. 1793 to 1805, and 1848 to 53; and the present R. was proclaimed 1870, Sep. 4. Such govt. as Spain had 1873, Feb.—1874, Dec. 31, was of republican form. Switzerland also is a R.; since 1848 more democratic than formerly. The other republics of Europe are the diminutive states of San Marino and Andorra; some republican elements were till recently traceable in the constitution of the free cities Hamburg, Bremen, and Lübeck. The most important of modern republics is that of the United States of America—dating from its separation from Great Britain. It is not at all an absolute or pure democracy, though its government involves some strongly democratic elements. Mexico, except during the short-lived empire 1863–67, has been a R. since 1824. Ten republics at present exist in S. America—Peru, Chili, Paraguay, Bolivia, Colombia or New Granada, Venezuela, Ecuador, Uruguay, the Argentine Confederation, and Brazil.—In the republics of the ancient world, the franchised classes exercised their power directly, without any system of delegation or representation. The same was at first the case in the Swiss cantons, where, however, representative government has been gradually

REPUBLICAN FORK—REPUBLISH.

introduced. Modern republics have been founded on the representative, not the direct, system, which can hardly exist except in a community that is very small and concentrated as to space. Switzerland is a *federal* R.; the United States also is sometimes so termed; but is rather a *united* R. of many republics—a unique political entity, constituting a single nation under one of the strongest central governments anywhere known; yet with the immense powers of that government strictly defined within a narrow range, while reserving to each several state the broad sphere of government concerning its individual affairs. See CONSTITUTION OF THE UNITED STATES: FEDERAL GOVERNMENT.

REPUBLICAN FORK, or REPUBLICAN RIVER: stream rising in n.e. Colo., flowing through deep cañons and majestic scenery, and through the n.w. part of Kan. into Neb. where it pursues an e. course and drains the s.w. counties, and then again enters Kan. about 150 m. from the e. border of the state. It receives numerous tributaries, some of which, as Medicine Lane Creek, White Man's Fork, and Rock Creek, are of considerable size. By its union with the Smoky Hill it forms the Kansas river, in the state of Kansas. Total length more than 400 miles.

REPUB'LCAN PARTY: see POLITICAL PARTIES.

REPUBLICATION, *rē-pŭb'li-kā'shŭn* [*re*, again, and *publication*]: a new publication of something formerly published.

REPUBLISH, v. *rē-pŭb'lish* [*re*, again, and *publish*, to publish a new edition of a work. REPUB'LISHING, imp. REPUB'LISHED, pp. -*lish*t.

REPUDIATE—REPUDIATION OF DEBTS.

REPUDIATE, v. *rě-pū'di-āt* [L. *repudiātus*, repudiated—from *repudium*, a separation, a divorce: It. *repudiare*: F. *répudier*]: to disclaim; to disavow; to discard: to divorce; to refuse to pay or acknowledge any longer, as a debt. REPU'DIATING, imp. REPU'DIATED, pp. REPU'DIATOR, n. -*ā-tér*, one who repudiates. REPU'DIABLE, a. -*ā-bl*, that may be rejected; fit or proper to be put away. REPU'DIA'TION, n. -*ā'shŭn* [F.—L.]: disavowal; rejection; divorce. REPU'DIA'TIONIST, n. -*ist*, one who disavows liability for debt incurred by a predecessor in office, etc.—SYN. of 'repudiate': to disavow; deny; disown; disclaim; divorce; renounce; discard; reject.

REPUDIATION OF DEBTS, GOVERNMENTAL. The earliest and only financial failure of the United States was that of its paper currency during the revolutionary war, of which over \$200,000,000 had been issued when, 1780, it ceased to circulate as of no value. To the extent that the national govt.—not then fully formed—cancelled debts with this paper money, without redeeming the paper, it repudiated its obligations.

About 1830-40 the debts of various states of the Union assumed serious proportions. The aggregate, 1830, before an era of unwise expenditure set in, was not over \$13,000,000. Twelve years later it had reached \$213,777,916, divided as follows: middle states, \$73,348,072; southern states, \$73,340,017; western states, \$59,931,553; eastern states, \$7,158,274. Foreign investors were the chief holders of American securities, and Pres. Van Buren said, 1840, that the outstanding bonds called for \$12,000,000 annually to pay interest—'a sum exceeding half of the ordinary revenues of the whole United States.' Ind., 1841, with not over 100,000 voters, and hardly \$3,000,000 of capital employed in trade, was burdened with an interest charge of \$1,000,000 a year: the result was hopeless insolvency. Ohio also, 1841, was hardly less deep in difficulties, but, with immense resources and a people of great honesty and energy, managed to make good her credit. Of all the state debts, 1840, Penn. had the largest, \$31,000,000: it reached, 1843, nearly \$38,000,000. The Philadelphia bank of the U. S. suspended for the third and last time, 1841. It was found to have been plundered by its officers; and that jobbery, favoritism in agencies, and mismanagement had run riot. In Aug. the state failed to pay interest due on its bonds, with the effect of great feeling in England against America, and a permanent loss to Philadelphia of financial prestige, the advantage of which to New York was very great.

The earliest actual repudiation of state debts was by Miss. 1841, July 14, Gov. McNutt (gov. 1837-41), under whose sanction (by signature to legislative acts 1837 and 8) \$15,500,000 of state bonds had been issued to the Miss. Union Bank, declared his opinion that the first \$5,000,000 had been unconstitutionally issued. Under Mc-

REPUDIATION OF DEBTS.

Nutt's successor, T. M. Tucker (gov. 1841-43), elected as an original opposer of the issue of these bonds, their repudiation was an accepted fact, which the legislature indorsed by a resolution 1842. In 1875, when \$7,000,000 of the Union Bank and other bonds were still outstanding, on which no interest had been paid since 1842, the legislature adopted, and the subsequent legislature ratified, an amendment to the state constitution, prohibiting payment on 'any bond or bonds now generally known as Union railroad or Planters' Bank bonds.'

The debt of Va., at the close of the civil war, was about \$41,000,000. The interest account 1866 stood at \$2,250,000. A funding scheme, 1870-1, made the coupons of a new issue, receivable for taxes, a favor to the state's creditors, which the next legislature repealed; and when the courts decided against this, a tax of $\frac{1}{2}$ per cent. was laid on the funded bonds, and, under the name 'readjustment,' repudiation found supporters. The interest account was \$3,000,000 in arrears 1875; and 1876 the outstanding bonds amounted to \$29,489,326.38. A refunding act was passed 1878, Mar. 11, providing for 18-year and 32-year 3-per-cent. and 4-per-cent. non-taxable bonds. Early in 1879 the McCulloch bill for refunding \$8,491,961 was passed. The readjusters now met in convention, and at the election of 1879, Nov., their vote was 77,070, to 69,736 debt-payers. At the session of 1879-80 a bill of which H. H. Riddleberger was author was passed, repudiating over \$13,000,000 of state debt, but this Gov. Holliday vetoed. Gen. William Mahone, the readjuster leader, was elected U. S. senator for 1881-87, and H. H. Riddleberger was later chosen senator for 1883-89, the readjusters' fusion having elected their candidates for state offices and a majority of the legislature. Acts were then passed against taking the coupons on state bonds for taxes, as a means of repudiation of the debt confessed by the bonds. See VIRGINIA.

The state debt of Tenn., after the war, stood at about \$43,000,000, of which \$20,000,000 were disposed of by sales of railroad property. From 1875, when the interest account was greatly in arrears and bonds falling due could not be paid, measures of readjustment began to be considered; and 1877, Dec., a bill passed the house, but not the senate, for retiring the old bonds at 40 per cent. of their face value. Gov. Porter, a year later, reported over \$20,000,000 in bonds outstanding, of which \$11,000,000 had been declared invalid. A bill was finally passed, 1879, March 28, retiring most of the bonds at 50 per cent., in exchange, by agreement with creditors, for state 'fours.' The election of 1879, Aug. 7, however, went against ratification of this. Another act was passed 1881, May 19, under which less than half the old bonds were exchanged, at 60 per cent. of their face value, for bonds bearing interest 3 per cent. for 2 years, 4 per cent. for the next 2 years, 5 per cent. for the next 2 years, and 6 per cent. thereafter. The election of 1882 was carried by read-

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justers opposed to so much favor to creditors as that of the act of 1881; and an act was passed 1883 on the basis of the 1882 platform, and under this about five-sixths of an indebtedness of \$27,786,066 had been funded 1885 into 30-year bonds. See TENNESSEE.

The constitutional convention of La., 1879, entertained a proposition to acknowledge about \$4,000,000 of the state's bonds, issued under a funding act of 1874, Jan. 24, and to repudiate nearly \$20,000,000. A debt ordinance was adopted for retiring bonds of 1874, carrying 7 per cent. interest, in exchange for new bonds on which the interest was to be 2 per cent. for 5 years, 3 per cent. for 15 years, and 4 per cent. thereafter; or holders might have 75 per cent. of their bonds in new 4-per-cent. bonds. The U. S. supreme court decided, 1883, March, that this act of 1880 violated the state's contract of 1874, but that there were no means to compel the state to carry out its contract. See LOUISIANA.

The debts created in Ga., under the managers of early reconstruction after the civil war, were repudiated 1877 to the extent of \$6,000,000.

In 1876 Minn. had outstanding over \$2,250,000 of \$5,000,000 in bonds issued in aid of certain railroads; and the attempt was made by a committee of the legislature to show that these bonds need not be paid, according to the state guarantee of 1858. A bill of 1877, Mar. 1, was rejected by the people, and the disposition to repudiate ran a considerable course, until an act was carried 1880 exchanging the old bonds, at 50 per cent. of their face value, for 30-year $4\frac{1}{2}$ -per-cent. 'adjustment bonds,' and by the end of 1881 nearly all had been so exchanged.

REPUGN—REPULSION.

REPUGN, v. *rě-pūn'* [L. *repug'no*, I fight against (see **REPUGNANT**)]: in *OE.*, to withstand; to resist. **REPUGN'-ING**, imp. **REPUGNED'**, pp. *-pūnd'*.

REPUGNANT, a. *rě-pūg'nānt* [F. *répugnani*—from L. *repugnans* or *repugnan'tem*, fighting against, opposing—from *re*, against; *pugno*, I fight: It. *repugnante*]: characterized by opposition or contrariety; adverse, with *to*; inconsistent; inimical; in *OE.*, disobedient. **REPUG'-NANTLY**, ad. *-lī*. **REPUG'NANCE**, n. *-nāns* [F.—L.], or **REPUG'NANCY**, n. *-nān-sī*, opposition of mind; resistance; aversion; dislike.—**SYN.** of 'repugnance': dislike; antipathy; hostility; hatred; aversion; reluctance; unwillingness; inconsistency; irreconcilableness; contrariety; resistance;—of 'repugnant': opposed; adverse; contrary; opposite; inimical; hostile; inconsistent; irreconcilable.

REPULSE, v. *rě-pūls'* [L. *repulsus*, driven back; *repulsa*, a refusal, a denial—from *re*, back; *pello*, I drive: It. *ripulsa*]: to drive back by force; to repel: N. a being checked or driven back by force; refusal; denial. **REPULS'ING**, imp. **REPULSED'**, pp. *-pūlst'*. **REPUL'SER**, n. *-sēr*, one who repulses. **REPUL'SION**, n. *-pūl'shūn* [F.—L.]: the act of driving back; the power by which bodies or their particles, under certain circumstances, are made to recede from each other (see below). **REPULSE'LESS**, a. *-pūls'lēs*, that cannot be repelled. **REPULS'IVE**, a. *-īv*, tending to repulse; cold; reserved; forbidding. **REPULS'IVELY**, ad. *-lī*. **REPULS'IVENESS**, n. *-nēs*, the quality of being repulsive or forbidding.

REPUL'SION: term for a hypothesis formerly much in use in physics to account for a group of phenomena; but which, like the terms Caloric, Luminous Corpuscles, and other crude hypotheses of mediæval times appears doomed to extinction. The apparent R. between the particles of a gas, in virtue of which it exerts pressure on the containing vessel, is now known to be due to motion (see **HEAT**). A wet cork and an oiled one, floating on water, repel each other—a phenomenon fully accounted for by capillary *attraction*; as is that of the apparent repulsion of mercury by glass, which is shown to be due to the fact, that mercury attracts itself more than it attracts glass. No one now believes that a balloon rises while a stone falls, because the balloon is repelled, and the stone attracted, by the earth: this is a very good example, because it clearly shows how apparent R. may be the result of attraction. The earth attracts the balloon *less* than it attracts an equal bulk of the medium (air) in which it floats; consequently, the pressure of the air on the balloon is more than sufficient to support its weight. The moon raises tides not only on the side of the earth nearest her, but also on the side furthest from her. No one imagines that she attracts the nearer water, and repels the further. We know that she attracts the nearer water more, and the further less, than she

REPURCHASE—REQUA-BATTERY.

attracts the earth; and that the apparent R. is thus merely a difference of attractions.

It is not quite so clear how we are to account generally for R. in Electricity (q.v.), Magnetism (q.v.), and electro-magnetism, though many of these phenomena are known (especially by the beautiful experimental researches of Faraday) to bear explanations precisely analogous to that of the balloon above alluded to. There are also very curious problems, apparently involving R., connected with the behavior of the tails of comets. But it is reasonable to expect that we shall soon be able to account for all these phenomena by simple differences of attraction on the body influenced and the medium which surrounds it. Our real difficulty will thus be reduced to the explanation of attraction itself, which, indeed, promises to be a problem of a far higher order of complexity. For an account of some modern speculations on this subject, see FORCE.

REPURCHASE, v. *rě-pěr'chās* [*re*, again, and *purchase*]: to buy back: N. the act of buying again what has been sold.

REPUTE, v. *rě-pūt'* [F. *réputer*, to repute, to esteem—from L. *reputārē*, to compute, to calculate—from *re*, again; *puto*, I think: It. *reputare*]: to estimate; to think; to hold; to reckon: N. character, either good or bad; established opinion; general estimation. **REPU'TING**, imp. **REPU'TED**, pp.: **ADJ.** reckoned; accounted. **REPUTE'LESS**, -*lēs*, disgraceful; without repute. **REPUTABLE**, a. *rěp'ū-tā-bl*, having the good opinion of men; held in esteem; respectable; honorable. **REPU'TABLY**, ad. -*tā-blī*. **REPU'TABLENESS**, n. -*bl-nēs*, the quality of being reputable. **REPU'TA'TION**, n. -*tā'shūn* [F.—L.]: good name; character either in good or bad sense in public opinion; credit. **REPUTEDLY**, ad. *rě-pū'těd-lī*.—**SYN.** of 'reputable': creditable; honorable; estimable; respectable;—of 'reputation': repute; regard; estimation; honor; fame; esteem: credit; character; renown.

REPU'TED OWNER, in English Law: bankrupt trader who apparently possesses goods which he is holding with the consent of the real owner. Because a trader's holding such goods is fitted to give the impression of a greater capital or stock than he possesses, and thereby to obtain for him greater credit, it is provided that the goods so held may be ordered by the bankruptcy court to be sold for benefit of the creditors.—In the United States it has been held usually that one having possession of and apparent title to goods cannot, on those grounds, give real title in them to a purchaser; but N. Y. statutes provide somewhat differently.

REQUA-BATTERY, n. *rě'kwa-băt'ér-ī* [etym. doubtful]: a kind of mitrailleuse, consisting of a number of rifle breech-loading barrels arranged upon a horizontal plane on a light field carriage. They were much used in the attack upon Charleston 1863 by the U. S. forces under Gillmore.

REQUEÑA—REQUISITE.

REQUEÑA, *rā-kān'yā* : town of Spain, in the modern province of Cuença, about 80 m. s.e. of the town of Cuença. Its people are employed in the manufacture of woolen, cotton, and silk fabrics. Pop. 10,500.

REQUEST, n. *rě-kvēst'* [OF. *requeste* ; F. *requête*, a request—from L. *rēquisītus*, sought or searched for—from *re*, again ; *quēsītus*, sought ; *quærērē*, to seek] : a desire expressed to another for something to be granted or done ; state of being desired ; the thing asked or solicited ; petition ; prayer ; entreaty ; demand : V. to express a desire for ; to solicit respectfully. **REQUEST'ING**, imp. **REQUEST'ED**, pp. **REQUEST'ER**, n. *-ér*, one who requests, **IN REQUEST**, in demand ; in credit or reputation. **COURT OF REQUESTS**, in England, an anc. court of equity, inferior to the court of chancery—abolished in the reign of Charles I. Various local tribunals, also so named, for recovery of small debts, have been superseded by the county courts.—**SYN.** of 'request, v.' to ask ; solicit ; petition ; beseech ; desire ; beg ; pray ; entreat ; supplicate ; implore ; crave.

REQUICKEN, v. *rě-kwīk'ěn* [*re*, and *quicken*] : in *OE.*, to reanimate ; to inspire with new life.

REQUIEM, n. *rě'kwī-ēm* [L. *requiēs* or *requiem*, rest, repose, as from labor, suffering, or care—from, *re*, again ; *quīēs*, rest : F. *requiem* : It. *requie*] : dirge or grand and solemn musical service for the dead in the Rom. Cath. Church ; consisting in the celebration of the mass *Pro Fidelibus Defunctis* (For the Faithful Departed), the first words of the Introit of which are *Requiem æternam*.

REQUIN, n. *rěk'wīn* [F.] : the white shark ; the *Car-chārias vulgāris*.

REQUIRE, v. *rě-kwīr'* [L. *requirērē*, to want, to require—from *re*, back or again ; *quæro*, I seek : F. *requérir*] : to ask, as of right or by authority ; to demand ; to claim ; to call for ; to make necessary ; to need ; in *OE.*, to request. **REQUI'RING**, imp. **REQUIRED'**, pp. *-kwīrd'*. **REQUI'RER**, n. *-rér*, one who requires. **REQUI'RABLE**, a. *-rā-bl*, capable of being required. **REQUIRE'MENT**, n. *-mēnt*, demand ; claim ; in the plu., things for the supply of needs ; necessities.—**SYN.** of 'require' : to enjoin ; prescribe ; order ; demand ; exact ; direct ; ask ; need.

REQUISITE, a. *rěk'wī-zīt* [L. *requisītus*, needed, being requisite ; *requirērē*, to require—from *re*, back or again ; *quæro*, I seek : It. *requisito*, requisite] : necessary ; needful ; essential : N. something required by the nature of things, or by circumstances ; a want ; a need. **REQUI-SITELY**, ad. *-lī*. **REQUI-SITENESS**, n. *-nēs*, the state of being requisite or necessary. **REQUI-SITION**, n. *-zīsh'ūn* [F.—L.] : written request or invitation ; demand ; in international or interstate law, demand by the authorities of a state or nation on those of another for the rendering or extradition of an alleged criminal (see **EXTRADITION**). In *mil.*, a written demand for forage, food, arms, etc. It is closely related to contribution,

REQUITE—REReward.

but differs from it in that the requisition is a demand for supply of food, animals, labor, etc., for the use of the party making it, while the contribution is a cash payment required either to furnish supplies to the invaders or to give them the means for carrying on the government. In common use, the term requisition often includes everything under the head of contribution. The old custom of imposing heavy fines on an invaded country has been greatly modified, and civilized nations have generally adopted the principle that in war the rights of private citizens should be respected, and that when it is necessary to take their property receipts should be given for the same in order that payment may be made after the war. **REQUISITION**, v. to make a requisition upon; to demand; to ask. **REQUISITIVE**, a. *rě-kwiz'ī-tiv*, expressing or implying demand.—**SYN.** of 'requisite, a': necessary; essential; needful; indispensable.

REQUITE, v. *rě-kwīt'* [*re*, again, and *quit*]: to make a return for treatment, either good or evil; to repay; to recompense; to avenge. **REQUITING**, imp. **REQUITED**, pp. **REQUITER**, n. *-tér*, one who requites. **REQUITAL**, n. *-tāl*, the act of requiting; return for treatment, good or bad; retribution; recompense.—**SYN.** of 'requite': to compensate; pay; repay; remunerate; reward; recompense; satisfy; punish; retaliate.

REREDOS, n. *rěr'dōs* [*F. arrière*, behind; *dos*; *L. dorsum*, the back]: in *arch.*, wall at the back of an altar, seat, large fireplace, etc.; screen; partition wall. In churches, the **R.** is usually in the form of a screen behind the altar, and rising 3 to 6 ft. above it, detached from the e. wall, and invariably ornamented with niches, statues, etc., or with paintings or tapestry. Very fine examples are at Durham, St. Albans, etc., in England; in Trinity Church, New York; and other churches.

REREE, n. *rěr'ē*: a plant, *Typha angustifolia*, the leaves of which are used in the N. W. Provinces of India for making mats.

REREMOUSE, n. *rěr'mows* [*AS. hreremus*, a bat—from *AS. hreran*; *Icel. hræra*; *Ger. rühren*, to stir]: the bat: also spelt **REARMOUSE**.

RE-RESOLVE, v. *rěr'rě-zōlv'* [*re*, again, and *resolve*]: to resolve a second time.

REReward, n. *rěr'wawrd* [from *rear*, and *ward*]: the part of an army which marches in the rear.



Reredos, Salisbury Cathedral.

RES—RESCRIPT.

RES, n. *rěz* [L. a thing]: a thing; a matter; a point; a cause or action. Used in legal phrases, as *res gestæ*, things done; *res judicata*, a matter already adjudicated upon.

RESACA DE LA PALMA, *rā-sā'kâ dā lâ pāl'mā*, **BATTLE OF**: engagement, in the Mexican war, 1846, May 9, in a ravine (from which the battle is named) which crosses the Matamoros road about three m. from the Rio Grande. The battle ground, thickly covered with palm trees, was in Cameron co., Tex. The Mexican force, led by Gen. Arista, numbering 6,000 men, was quickly defeated by 2,000 U. S. troops under Gen. Taylor.

RESAIL, v. *rě-sāl'* [*re*, again, and *sail*]: to sail back.

RESALE, n. *rě'sāl* [*re*, again, and *sale*]: a second sale.

RESALUTE, v. *rě'sā-lôt'* [*re*, again, and *salute*]: to salute or greet anew.

RESCIND, v. *rě-sind'* [F. *rescinder*—from L. *rescindĕrĕ*, to abolish, to rescind—from *re*, back or again; *scindĕrĕ*, to cut, to split: It. *rescindere*]: to render null or make void; to revoke; to repeal. **RESCIND'ING**, imp. **RESCIND'ED**, pp.—**SYN.** of 'rescind': to abrogate; annul; reverse; void; vacate; revoke; repeal; recall.

RESCISSION, n. *rě-sīzh'ūn* [F. *rescision*—from mid. L. *rescissīōnem*, an annulment, as of deeds—from L. *rescis-sus*, abolished: It. *rescissione*, rescission (see **RESCIND**)]: act of abrogating or annulling. **RESCISSORY**, a. *rě-sīs-sér-ī* [mid. L. *rescissōrius*]: having power to rescind.

RESCRIBE, v. *rě-skrīb'* [L. *rescribĕrĕ*, to write in reply to—from *re*, again; *scribo*, I write]; to write back; to write over again. **RESCRIB'ING**, imp. **RESCRIBED'**, pp. *-skribd'*.

RESCRIPT, n. *rě'skrīpt* [L. *rescriptus*, answered in reply to—from *re*, again; *scriptus*, written; *scribo*, I write]: an answer in writing: eminently, the answer of a pope or an emperor to one consulting him on any question of jurisprudence officially propounded to him. *Rescripta principis* were one of the authoritative sources of the civil law, and consisted of the answers of the emperor to those who consulted him, either as public functionaries or as individuals, on questions of law. They were often applied for by private persons, especially women and soldiers, to solve their doubts or grant them privileges. The rescripts directed to corporate and municipal bodies were known as *Pragmaticæ sanctiones*, a name which has found its way into the public law of Europe: see **PRAGMATIC SANCTION**. Rescripts might gradually come to have the force of law, so far as their determinations in particular cases were of general application. **RESCRIPTION**, n. *rě-skrīp'shūn* [F.—L.]: the answering of a letter

RESCUE—RESECTION.

RESCUE, v. *rěs'kū* [OF. *rescousse*, a rescue; *rescoussē*, to recover: It. *riscuotere*, to fetch a thing out of pawn, —from L. *re*, back or again; *excutērē*, to take away by force—from *ex*, out; *quatērē*, to shake, drive]: to set free from danger or restraint; to deliver from evil in any way; to recapture; to liberate: N. deliverance from danger or restraint; release; liberation; recapture; in *law*, illegal delivery and discharge of a prisoner or of goods out of the custody of the law. If, e.g., a tenant whose goods are distrained for rent, take them by force from the officer, the distrainer has right of action against the tenant or person who rescues the goods. When a prisoner is in custody for felony, and is rescued, the rescuer commits a felony. **RES'CUING**, imp. **RES'CUED**, pp. *-kūd*. **RES'CUER**, n. *-kū-ēr*, one who rescues.—**SYN.** of 'rescue, v.': to liberate; recapture; retake; deliver; save; free.

RESEARCH, n. *rě-sērch'* [*re*, again, and *search*: comp. F. *recherche*, inquiry, search]: a laborious or continued, search after facts or principles; investigation; examination.—**SYN.**: inquiry; scrutiny; examination; investigation.

RESEAT, v. *rě-sēt'* [*re*, again, and *seat*]: to seat anew.

RESECTION, n. *rě-sěk'shūn* [*re*, again, and *section*]: the act of cutting or paring off. **RESECTION** (or **EXCISION**) **OF A JOINT**: surgical operation in which the diseased bone of a joint is cut out, instead of cutting off the whole limb. Dr. Druitt, in *The Surgeon's Vade-mecum*, remarks, that 'it seems to be established that excision is on the whole safer than amputation; less violence is done to the body, fewer great arteries and nerves are injured, and, what is of more consequence, fewer large veins are divided, and as the articular end of the bone only is sawn off, and the medullary canal not touched, there is less chance of pyæmia. Lastly, the patient is left with an imperfect limb, it is true, but with one which, in most cases, is highly useful.' The operation has been performed on the ankle-joint, the elbow, hip-joint, knee and shoulder. There was long discussion among surgeons as to applying this operation to the knee-joint. The operation was performed first in 1762; and to 1830, there are records of 19 cases, of which 11 died. 1830-50 the operation was never performed, and was generally condemned; but 1850 it was revived by Prof. Fergusson, and is now frequent. 'The cases,' says Dr. Druitt, 'in which it ought to be performed are, generally speaking, such cases of injury or disease as would otherwise be submitted to amputation. The *object* of the operation is to produce a firm and useful limb, slightly shortened, and with entire bony union or fibrous union, admitting of some small degree of motion at the situation of the joint. But all cases are not suitable for excision; and those cases are unsuitable and better adapted for amputation in which either the *quantity* of the diseased bone is very great (for then the case will probably not do well, or, if

RESEDA—RESENT.

it proceed to recovery, and the patient be young, the future growth of the limb will be prevented), or the *quality* of the disease may be such as experience has shown to be incompatible with the exudation of healthy material of repair.' In at least 50 per cent., the operation results in a good useful leg. It must be regarded as one of the triumphs of modern surgery.—See Prof. Fergusson's *Lectures on Conservative Surgery*; Buck's *Reference Handbook of the Med. Sciences*, N. Y., 1889.

RESEDA, n. *rě-sědǎ* [L. *resēda*, the mignonette—from *resēdo*, I calm or appease, so called from its supposed virtues as an external application]: genus of favorite flowering plants known as mignonette, ord. *Resedacēæ*. **RESEDACEÆ**, natural order of exogenous plants, mostly herbaceous; having alternate leaves; terminal spikes of hermaphrodite irregular flowers; the calyx of 4–7 unequal segments; the corolla of 4–7 petals, alternate with the segments of the calyx, the lower petals entire, the upper much cut; the stamens 10–30, inserted on a fleshy receptacle; the germen free, one-celled; the fruit a many-seeded capsule, three-horned, and often open at the apex, so as to expose the seeds, which are kidney-shaped. There are about 40 known species, mostly natives of Europe and w. Asia, and mostly mere weeds. Weld (q.v.), otherwise called Dyer's mignonette, and common Mignonette (q.v.), are the noticeable species.

RESEEK, v. *rě-sěk'* [*re*, again, and *seek*]: to seek again.

RESEIZE, v. *rě-sěz'*: to seize a second time. **RESEIZURE**, n. *rě-sězh'ûr*, the act of seizing again.

RESELL, v. *rě-sěl'* [*re*, again, and *sell*]: to sell again what has been bought or sold.

RESEMBLE, v. *rě-zěm'bl* [OF. *resembler*—from L. *re*, again; *simulārē*, to make like—from *similis*, like: F. *resssembler*]: to be like; to possess similar external form or structure; to possess like or similar qualities; in *OE.*, to liken. **RESEM'BLING**, imp. **RESEM'BLed**, pp. *-bld*. **RESEM'BLANCE**, n. *-blāns*, likeness; state of having similar external form or structure; image; similarity.—**SYN.** of 'resemblance': likeness; representation; image; similarity; similitude; semblance.

RESEND, v. *rě-sěnd'*: to send again or back.

RESENT, v. *rě-zěnt'* [F. *ressentir*; It. *risentire*, to resent—from L. *re*, again; *sentirē*, to feel]: to have a deep sense of; to take ill; to consider as an injury or an affront; to be somewhat provoked at. **RESENT'ING**, imp. **RESENT'ED**, pp. **RESENT'ER**, n. *-ēr*, one who resents. **RESENT'MENT**, n. *-měnt* [F. *ressentiment*]: the feeling of anger or irritation caused by a sense of injury or insult; anger; prolonged anger. **RESENT'FUL**, a. *-fûl*, easily provoked to anger, and retaining it long. **RESENT'FULLY**, ad. *-lŷ*.—**SYN.** of 'resentment': irritation; anger; vexation; displeasure; grudge; wrath; rage; fury; indignation; choler; gall; ire.

RESERVATION.

RESERVATION, MENTAL [Lat. *reservatio* or *restrictio mentalis*]: act of reserving or holding back some word or clause necessary to convey fully the meaning really intended by the speaker. It differs from equivocation (Lat. *equivocatio* or *amphibolia*) in this, that in the latter the words employed, though doubtful, and perhaps not fitted naturally to convey the real meaning of the speaker, are yet, absolutely speaking, and without the addition of any further word or clause, susceptible of that meaning. Thus, an example of an equivocation would be: 'I did not write this libel,' meaning, 'I did not perform the mechanical operation of *writing it with a pen*,' though I had really *composed* and issued it. A mental R., might be involved in the same words, if one were to say: 'I did not write this libel,' mentally withholding the word 'to-day,' though he had written it 'yesterday,' or on some earlier day. Few questions in casuistry have excited more controversy, or have been the subject of fiercer recrimination, than that of the lawfulness of equivocation and mental R. In the celebrated *Letters of Pascal* (q.v.) against the Jesuits, it was one of the most prominent, and as he used it, the most effective topics; and Pascal's charges against the Jesuit casuistry of that day have been repeated in almost every popular controversy on the subject since. There are several varieties of mental R., differing from each other, and all differing from equivocation under its several forms. But as regards the morality of the subject, all the forms of language calculated to deceive may be classed together, and may be treated according to the same common principles. Mental R. is of two kinds, *purely mental* and *not purely mental*. By the former is meant a mental R. which cannot be detected, whether in the words themselves or in the circumstances in which they are spoken. Of this kind, would be the mental reservation implied if a person, on being asked if he had seen A. B. (whom he really had just seen *walking* by), were to reply: 'I have not seen him,' meaning '*riding on horseback*.' A 'not purely mental' R. is that which, though not naturally implied or contained in the words, may nevertheless be inferred or suspected, either from them or from the circumstances in which they are used. Of this kind would be the mental R. of a servant, in giving the ordinary answer to a visitor's inquiry for his master: 'Not at home,' though his master were really in the house; or that of a confessor, who, in a country where the privileges of the secret of the confessional are known and admitted, on being asked whether a certain person had committed a crime, which the confessor knew from his confession that he had committed, should answer: 'I do not know,' meaning 'outside of the confessional.' And, in general, all such doubtful forms, whether of mental R. or of equivocation, may be divided into *discoverable* and *undiscoverable*. Much, though certainly not all, the odium against the casuists for their teaching on this head, has arisen from the con-

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fusion of their views as to these two classes of mental R.; and the witty ingenuity with which Pascal mixed examples of both, and applied to one what was really said of the other, did more to damage the theological reputation of his adversaries, as a school, than any of the genuine really objectionable decisions which he cited from the writings of individual divines. Mental R. has formed a subject of discussion for Prot. as well as Rom. Cath. divines; but without entering into a detailed history of this branch of casuistry, we state briefly the chief principles on which the decisions of the most approved writers, especially of the Rom. Cath. school, are founded.

First, 'purely mental' reservations, and 'absolutely undiscoverable' equivocations, are held to be in all cases unlawful, such forms of speech being actually and only falsehoods; inasmuch as they have but one real sense, which is not the sense intended by the person who uses them, and hence can serve only to deceive. This doctrine is held by all sound Rom. Cath. casuists, and the contradictory doctrine is expressly condemned by Pope Innocent XI. (Propp. 26, 27). On the contrary, mental reservations 'not purely mental, and 'discoverable' equivocations, are held to be not inconsistent with truth; and, in certain circumstances, when there is necessity or weighty reason for resorting to them, allowable. For the absolute admissibility of the expedient of mental R. and of equivocation in such circumstances, casuists allege Scriptural precedent from Gen. xx. 12; Matt. xi. 14; Acts xxiii. 6; and other passages; and the principles on which their use, in such case, is defended, are (1), that there is supposed to be in the circumstances justification, and even necessity, for not making known the whole truth; (2) that the mental R. in the case supposed does not amount to more than a mere *withholding the entire truth*, inasmuch as what is stated is true, and the real meaning of the speaker is *contained in it, and discoverable from it*; and the false construction put on it by the hearer, though permitted through necessity or grave reason by the speaker, is not *positively* put forward by him. A historical example of such equivocation or R. is in the well-known answer of St. Athanasius to the question of the party in pursuit of him, and who, overtaking him, but not knowing his person, asked what way Athanasius had gone: *He is not far off*, replied Athanasius, and the party passed on in pursuit. A less easily discoverable equivocation is ascribed to St. Francis of Assisi, who, when a gang of robbers in pursuit of a traveller asked him whether he had seen the traveller pass by, put his hand up the sleeve of his habit, and replied: 'He did not pass *this* way,' meaning, 'up his sleeve.' And an ordinary example of discoverable mental R. is that of a person who, being asked by one to whom he could not with safety give a refusal, whether he has any money, should reply: 'No,' meaning, 'none to lend to you.' In order, however, to justify

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the use of these devices of speech, casuists require that there shall be some grave and urgent reason on the speaker's part; e.g., the necessity of keeping a state secret, or a secret of the confessional, or of a professional character, or even the confidence intrusted by a friend, or the ordinary and fitting privacy requisite for the comfort and security of domestic life, and for the peaceful intercourse of society; and that the concealed sense of the form of speech employed, though it may be *actually undiscovered*, and even unlikely to be discovered, may yet be, in all the circumstances, *really discoverable*. On these two leading theoretical principles, the majority of casuists are agreed. But a wide field for practical discussion lies between them, in the variety of senses which may be attached to the phrases 'not purely mental' and 'discoverable;' and it is in the practical interpretation of these terms that some of the casuists have found scope for introduction of the lax decisions which have brought odium on casuistry. Much of this odium has fallen upon the Society of the Jesuits, to such a degree, that their name has been popularly associated with the worst forms of the practice of mental R.: see JESUITS: PASCAL.—See Scavini, *Theologia Moralis*, ii. 23; Murray, *Theological Essays*, iv. 274, etc.

RESERVATUM ECCLESIASTICUM—RESERVE.

RESERVATUM ECCLESIASTICUM: a provision of the religious Peace of Westphalia, celebrated in German history. By this clause of the treaty of Westphalia (1549), it was enacted that if the holder of any ecclesiastical dignity, or of any territorial jurisdiction or property annexed to such ecclesiastical dignity, should change his religion, the dignity, territorial jurisdiction, or property held by him, should not be thereby alienated from the church from which he seceded, but should be still 'reserved' for that church, and for the legitimate successors of the seceder. It was chiefly out of the disputes regarding the violations of the R. E. that the Thirty Years' War arose.

RESERVE, n. *rě-zěrv'* [F. *réserver*—from L. *reservāre*, to reserve—from *re*, back; *servo*, I keep: It. *riservare*]: something kept in store for future use; in *mil.*, a body of troops kept in the rear of an army in action to give support where required, or to meet any contingency (see **RESERVE**, in *Milit.*): a laying up and keeping for a future time; reservation or exception, as, a sale by auction without *reserve*; something concealed in the mind; caution or restraint in personal behavior; shyness; in *OE.*, exception; prohibition; exception in favor: **V.** to keep in store for future use; to withhold from present use for another purpose; to retain; to keep. **RESERV'ING**, imp. **RESERVED'**, pp. *-zěrvd'*: **ADJ.** restrained; shy; modest; not frank and open. **RESERV'EDLY**, ad. *-ěd-lī*. **RESERV'EDNESS** n. *-ěd-něs*, the state of being reserved; want of frankness or openness. **RESERV'ER**, n. *-ěr*, one who reserves. **RESERVATION**, n. *rěz'ěr-vā'shŭn* [F.—L.]: the act of reserving or keeping back; state of being kept in reserve; concealment in the mind (see **RESERVATION**, **MENTAL**): exception in favor; something reserved: in *law*, term used in lease, also in grants of a less estate than the fee-simple, signifying the part not given away; used also in reference to rent, denoting a rent out of the premises which is reserved by the landlord for himself (see **RENT**). In *OE.*, state of being treasured up; custody. In **RESERVE**, in keeping for other or future use; in store.—**SYN.** of 'reserve, n.': retention; limitation; reservation; coldness; shyness; modesty; backwardness; restraint; caution.

RESERVE', in Military and Naval Affairs: term with several meanings. In a battle, the R. is a body of troops held in the rear, generally out of fire, and kept fresh, that they may intervene with decisive force at any point where yielding troops require support, or an advantage gained needs powerful following up.—The R. of ammunition is a magazine of warlike stores, situated between an army and its base of operations, sufficiently retired from the front to be safe from sudden raids of the enemy, and at the same time advanced enough to allow of the supply actually in the field being speedily replenished.

The R. of a nation is that force on which the national

RESERVE—RESERVED LIST.

defense is thrown, when its regular armies have failed in securing its safety. This reserve may be the *levée en masse* of the whole adult male population, or it may consist of a smaller section of the people duly trained to arms. The latter is the preferable system, when the arms of scientific modern warfare are to be brought into action. In different countries, the reserves are organized on very different principles. In Great Britain, they comprise the army reserve, the enrolled pensioners—both of which consist of soldiers who have served in the army—the militia, yeomanry, volunteers, and trained constabulary. The numbers of the reserve forces, provided for in the army estimates 1902-03, were as follows:

Reserves.....	80,000
Militia Reserve (new).....	50,000
Militia.....	131,737
Militia of Channel Islands, Malta and Bermuda...	6,002
Yeomanry.....	35,164
Volunteers.....	346,769
Total.....	669,672

In the United States there is officially no army reserve under direct control of the war department; but the militia or national guard of the different states under the immediate control of the governors, constitutes an effective force which may be called into the general service by the respective governors on the order of the president. This force aggregated (1903) 96,808 inf.; 4,951 cav.; 6,671 artil.; total, 183,596, with 1,791 commissioned officers. The number of men available for military duty was 8,727,500.

The reserves of all grades in foreign navies 1891 were: Austria, 7,500; France, 150,000; Germany, 34,000; Great Britain, 55,000; Italy, 14,000; Netherlands, 3,500; Russia, 22,000; Spain, 6,700; and Sweden and Norway, 3,000-1,100.—In the United States, congress passed a bill, 1891, authorizing the organization of a naval militia in the seaboard states, the whole to form a national naval reserve; and in 1903, this was organized in 16 states and the district of Columbia, with 433 officers and 4,447 men. See NAVAL RESERVE: also ARMIES: NAVIES, MODERN: VOLUNTEERS: MILITIA: WAR SERVICES: YEOMANRY.

RESERVED' LIST, in the British Navy: device whose practical operation was the same as that of the Retired List (q.v.). Since 1870 it has become almost inoperative.

RESERVOIR.

RESERVOIR, n. *rě-z'ér-vvawr'* [F. *réservoir*, a reservoir—from mid. L. *reservatōrium*, a storehouse—from L. *re*, again; *servo*, I keep or preserve]: receptacle for storing water for any purpose, but chiefly for supply of towns, driving machinery, feeding canals, irrigation, or some process of manufactures. Generally, every water-works' establishment, for the supply of a town, requires to construct one or more reservoirs for providing compensation to the mills situated on the stream, for the water abstracted from any of its feeders.

The most advantageous position for a storage R. is that where there is a narrow gorge in a valley widening out upward into a flat expanse, thereby enabling a comparatively small dam or embankment formed in the gorge to impound a large body of water; but in many cases where there is no such choice, the embankment may necessarily be placed across a wide part of a valley which narrows as it ascends, thereby requiring a great embankment, in proportion to the quantity of water impounded. Sometimes reservoirs have to be formed on flattish ground affording no great natural facilities for storing water; and in such cases they may require to be embanked wholly or nearly around. Where a R. must be constructed on perfectly level ground, the excavation must be calculated to be exactly equal to the embanking. The worst possible situation for a store reservoir is on the slope of a hill.

In many cases, natural lakes are used as reservoirs, means being adopted for raising or lowering the surface of the water, the difference between the lowest and the highest level of the lake's surface, multiplied by its area, being the measure of the available storage. The capacity of a R. necessary for making nearly the whole water of a district available for use, depends much on the climate. Where droughts are of long continuance, its capacity requires to be proportionally large.

As illustrative of the very different facilities afforded by different sites for storing water, an instance occurs of two reservoirs of the Edinburgh Water Trust, whereof

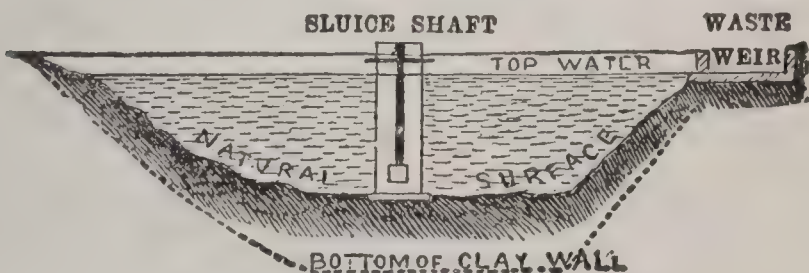


Fig. 1.—Elevation of Reservoir.

one with an embankment containing 175,000 cubic yards of earthwork impounds only 17 millions of cubic feet of water; while another, with an embankment of 53,000 cubic yards, impounds 85 millions of cubic feet, there being a single embankment across a valley in both cases. Generally, the structure for impounding water is an

RESERVOIR.

earthwork embankment, with a slope toward the water of 3 or 4 horizontal to 1 perpendicular, a breadth across the top of 6 to 12 ft., the height being from 4 to 7 ft. above the water, and an outside slope of 2 to $2\frac{1}{2}$ horizontal to 1 perpendicular. The earthwork ought to be formed in thin layers well rammed, and to have a puddle-wall of good well-worked clay in the centre, the foundation of the puddle being a trench dug down to impervious rock or clay. The face toward the water requires to be protected by stones; and when a R. is large, those stones must be 'pitched'—i.e., regularly set by hand—

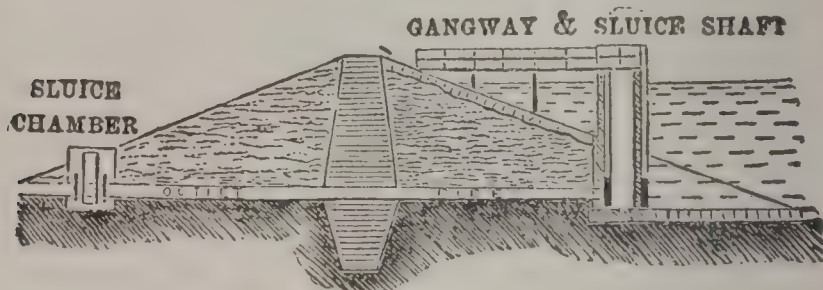


Fig. 2.—Transverse Section of Reservoir.

so as to be able to resist the lash of the wave. In all cases, there is imperatively required a waste-weir, to allow flood-waters to escape without risk of overflowing the dam. The weir ought, if possible, to be placed on the solid ground; and if it can be cut through solid rock, that is best, and saves great expense for masonry. The width of the waste-weir must be regulated by the catchment or extent of gathering-ground of the R., and by the rainfall of the district; but for a given catchment and rainfall, a R. having a small area ought to have a larger waste-weir than one having a larger area, as the latter would allow flood-water to accumulate without rising to so high a level as in the former. Generally, however, 12 to 20 ft. length of waste-weir may suffice for a sq. m. of catchment. In some cases, dams across gorges, for the purpose of forming reservoirs, are constructed of walls of heavy masonry, instead of earthwork embankments. Those across rivers for diverting the water into mill-lades, and for retaining the water which would otherwise be wasted at meal-hours, are constructed generally of stone, but sometimes of timber or iron.

The word dam is sometimes used incorrectly to indicate a R. or sheet of water, instead of the structure used to form the R., which is its proper meaning. A R. requires a sufficient outlet at the bottom by means of a tunnel, culvert, or iron pipes provided with suitable sluices, and these ought properly to be so arranged as that access can be had to them even when the R. is full.

Most of the disasters from the bursting of reservoirs have arisen from lack of sufficient waste-weirs, which occasions the embankments to be overtopped by the water, and the outer slope to be washed away, so as to

RESET—RESIANT.

deprive the puddle-wall of its support; but some accidents have occurred from the outlet being by a wooden box or trough through the embankment, and that being neglected and allowed to get rotten.—The bursting of some reservoirs occurs from the embankment sinking to, and being allowed to remain at, a level actually below that of the waste-weir, so that the embankment is overtopped; and the bursting of others is due to a landslip under the embankment. For the most disastrous and destructive instance on record of the bursting of a R., see JOHNSTOWN (Penn.).

Distributing reservoirs for towns, used chiefly for storing the surplus water during the night, which otherwise might mostly go to waste, ought to hold at least half a day's supply, and ought to be placed high enough to command the highest parts of the town. They are usually built of masonry or brickwork, but are sometimes made of cast iron, and now of boiler-plate—in which last case they are best of circular form. In India and in s. Europe, where long droughts prevail, immense reservoirs have been constructed for supplying water for irrigation.

RESET, v. *rē-sět'* [OF. *recete*, *recepte*, something received (see RECEIPT)]: in *Scotch law*, to receive stolen goods: N. the offense of receiving and keeping stolen goods. RESET'TER, n. *-tēr*, one who receives stolen goods.

RESET, v. *rē-sět'* [*re*, again, and *set*]: to set again, as a diamond; among *printers*, to set over again.

RESETTLE, v. *rē-sět'l* [*re*, again, and *settle*]: to settle again. RESET'TLEMENT, n. a second or new settlement.

RESHAPE, v. *rē-shāp'* [*re*, again, and *shape*]: to shape again.

RESHD: see RASHT.

RESHID' PASHA' (MUS'TAPHA MEH'EMED): see REDSHID PASHA.

RESHIP, v. *rē-shīp'* [*re*, again, and *ship*]: to ship a second time; to ship again for another place what has been imported. RESHIP'MENT, n. the act of shipping again; goods reloaded and sent to another port.

RESIANT, a. *rěž'i-ănt* [Norm. F. *reseant*, dwelling—from mid. L. *resians*, dwelling in a place: L. *residens* or *residen'tem*, residing (see RESIDE)]: in *OE.*, resident; present in a place. RES'IANCE, n. *-i-ăns*, in *OE.*, residence; dwelling; abode.

RESIDE—RESIGN.

RESIDE, v. *rě-zīd'* [F. *résider*—from L. *residērē*, to remain, to abide—from *re*, again; *sedēō*, I sit: It. *risedere*]: to continue in a place as an inhabitant; to abide; to live; to dwell. **RESID'ING**, imp. **RESID'ED**, pp. **RESID'ER**, n. *-ér*, one who resides in a particular place. **RESIDENT**, a. *rěz'i-děnt* [F.—from L. *res'idens* or *residen'tem*, remaining, abiding]: dwelling or abiding in a place: N. one who resides or dwells in a place; an inhabitant; a public minister residing at a foreign court. **RES'IDENCE**, n. *-děns* [F.—L.]: act of residing; place where one resides; home; an abode; a mansion; also **RES'IDENCY**, n. *-děn-sī*, an abode; the official dwelling of a government officer in India. **RES'IDEN'TIAL**, a. *-děn'shāl*, having actual possession; related or pertaining to residence or residents. **RES'IDEN'TIARY**, a. *-shér-ī*, residential: N. one who keeps a certain residence, as the canon of a cathedral.—**SYN.** of 'reside': to remain; live; dwell; abide; domicile; inhabit; sojourn; domiciliate; stay; house.

RESIDUE, n. *rěz'ī-dū* [F. *résidu*—from L. *resid'ūm*, a remainder—from *re*, back; *sedēō*, I sit: It. *residuo*]: that which remains after the greater part has been taken or separated; the rest; the remainder; the remainder of an estate after payment of debts and legacies. **RESIDUAL**, a. *rě-zīd'ū-āl*, remaining after the greater part has been taken. **RESID'UARY**, a. *-ér-ī*, pertaining to the residue; that takes the residue or remainder of an estate after paying debts and legacies; entitled to the residue, as a *residuary legatee*: if the debts and the express legacies exhaust all the funds, the residuary legacy is worth nothing. **RESID'UUM**, n. *-ūm*, the residue; the remainder: plu. **RESID'UA**, *-ā*.—**SYN.** of 'residue': remainder; rest; remnant; balance.

RESIGN, v. *rě-sīn'* [*re*, again, and *sign*]: to sign again.

RESIGN, v. *rě-zīn'* [F. *résigner*—from L. *resignārē*, to resign—from *re*, back; *signārē*, to mark, to sign—from *signum*, a mark: It. *risegnare*]: to give up, as a claim or an office; to yield into the hands of another; to submit without resistance or murmuring; to yield, as the will; to submit; to quit; to forsake. **RESIGN'ING**, imp. **RESIGNED'**, pp. *-zīnd'*: **ADJ.** calmly submitting to the will of God. **RESIGN'EDLY**, ad. *-ěd-lī*. **RESIGN'ER**, n. *-ér*, one who resigns. **RESIGNATION**, n. *rěz'īg-nā'shūn* [F.—L.]: the act of yielding or giving up; habitual submission to the will of God; submission; patience.—**SYN.** of 'resign': to surrender; abdicate; relinquish; submit; leave; quit; forsake; forego; renounce; abandon;—of 'resignation': endurance; patience; fortitude; acquiescence; surrender; submission; relinquishment; renunciation; abdication; abandonment.

RESILE—RESINS.

RESILE, v. *rě-zil'* [F. *résilier*, to cancel—from L. *resilīrē*, to leap or spring back—from *re*, back; *salīō*, I leap or spring]: to start back; to cancel; to withdraw from, as an agreement. **RESIL'ING**, imp. **RESILED'**, pp. *-zild'*. **RESILIENT**, a. *rě-zil'i-ěnt*, leaping or starting back; rebounding. **RESIL'IENCE**, *-ěns*, the act of springing back or rebounding; also **RESIL'ENCY**, n. *-ěn-sě*.

RESIN, n. *rěž'in* [F. *résine*, rosin—from L. *rēsīna*; Gr. *rhētīnē*, resin; It. *resina*]: brittle substance which exudes from many trees, especially from firs and pines, usually of yellowish or amber color, more or less transparent; the commonest *resin*, forming the remains of the still after distilling turpentine, is usually called *rosin* (see **RESINS**). **RESINATE**, n. *rěž'in-ăt*, general name for the salts of the acids obtained from turpentine—viz., the sylvates, the pinates, and the pimarates. Their general formulæ are $C_{20}H_{29}MO_2$ and $C_{40}H_{58}MO_4$. **RES'INY**, a. *-ĩ*, partaking of the qualities of resin. **RES'INOUS**, a. *-ūs*, containing or yielding resin; possessing the properties of resin. **RES'INOUSLY**, ad. *-lĩ*. **RES'INOUSNESS**, n. *-nēs*, the quality of being resinous. **MINERAL RESINS**, pitchy or resinous substances, as asphalt, amber, retinite, etc. **RESINOUS ELECTRICITY**, electricity which is excited by rubbing bodies of the resinous kind—called also *negative*, and opposed to *vitreous* or *positive electricity*. **RES'INO-ELEC'TRIC**, a. exhibiting negative electricity. **RES'INIF'EROUS**, a. *-ĩf'ěr-ūs* [L. *fero*, I produce]: producing resin. **RES'INIFORM**, a. *-ĩ-fawrm* [L. *forma*, shape]: having the form of resin.

RESINA, *rā-sě'nā*: town of s. Italy, province of Naples, at the foot of Vesuvius, and facing the sea. **R.** is built on the site of ancient Herculaneum. Exquisite fruits are grown, and the famous *Lacrimæ Christi* wine is made in the vicinity. It is surrounded by country houses, and is a place of recreation for the Neapolitans, on account of its salubrity. The ascent of Mount Vesuvius is begun at R.—Pop. 13,626.

RESINITE, n. *rěž'in-īt*: see **RETINITE**.

RES'INS: class of natural vegetable products composed of carbon, hydrogen, and oxygen. They are closely allied to the essential oils, all of which, when exposed to the air, absorb oxygen, and finally become converted into substances having the characters of resin; and in most cases they are obtained from the plants which yield them, mixed with and dissolved in a corresponding essential oil. Like the natural oils, the natural resins are usually mixtures of two or more distinct resins, which admit of separation by their unequal solubility in different fluids.

The following are the general characters of this class of compounds. At ordinary temperatures, they are solid, translucent, and mostly colored, though some are colorless and transparent. Some are devoid of odor, while others give an aromatic fragrance from the admixture of an essential oil. In their crude state, they

RESINS.

never crystallize, but are amorphous and brittle, breaking with conchoidal fracture; when pure, several of them may be obtained in crystalline form. They are readily melted by heat, and are inflammable, burning with white, smoky flame. They are usually described as non-volatile, but it has been shown that common resin may be distilled in a current of superheated steam. They are insoluble in water; but dissolve in alcohol, ether, and the essential and fixed oils. They are insulators or non-conductors of electricity, and become negatively electric by friction. Many possess acid properties, in which case their alcoholic solutions redden litmus. These R. combine with the alkalies, and form frothy soap-like solutions in alkaline lyes. The resinous soaps thus formed differ from ordinary soap in not being precipitated by chloride of sodium.

The R. are divisible into the *hard resins*, the *soft resins*, and the *gum resins*.—The hard R. are at ordinary temperatures solid and brittle; they are easily pulverized, and contain little or no essential oil. Under this head are included copal, the varieties of lac, mastic, and sandarac, and the R. of benzoin (commonly called gum benzoin), jalap, guaiacum, etc.—The soft R. admit of being molded by the hand, and some are viscous and semi-fluid, and are termed *balsams*. They consist essentially of solutions of hard R. in essential oils, or admixtures of the two. They become oxidized and hardened by exposure to the air into the first class of R. Under this head are placed turpentine, storax, balsam of copaiba, and the balsams of Canada, Peru, and Tolu.—The gum R. are the milky juices of certain plants solidified by exposure to the air. They consist of a mixture of R. and essential oils with considerable proportion of gum; and on this account, when rubbed up with water, they yield a turbid or milky fluid from the dissolved gum, retaining the resin and oil in suspension, and are only partly soluble in alcohol. Some of them, e.g., ammoniacum, asafetida, euphorbium, galbanum, gamboge, myrrh, olibanum, etc., are valuable medicinal agents; while others, e.g., caoutchouc (or India-rubber) and gutta-percha, are of great value in the arts and manufactures.

The R. are very widely diffused throughout the vegetable kingdom; but certain families of plants are especially rich in them. They are obtained usually by making incisions into the wood of the trees which produce them; but sometimes they exude spontaneously, and in other cases they must be extracted from the wood by boiling alcohol. The crude R. are separated from the essential oils with which they are usually mixed by distillation with water, the resin remaining while the oil and water pass off; and from the gummy and mucilaginous matters by alcohol, which dissolves out the pure R., which can be precipitated from their alcoholic solution by addition of water. The R. are extensively used in medicine; and in addition to the almost innumerable applications

RESINS.

of caoutchouc and gutta-percha, various R. are of service in preparation of varnishes, soaps, pigments, artificial light (resin-gas), etc.

Various fossil R. are known, of which the most important is amber. Some chemists place bitumen and asphalt among this class; and among the fossil R. described by mineralogists are Fichtelite, Hartite, Idrialite, Ozocerite, Scheererite, Xyloretin, etc.

The common resin, or rosin, of commerce exudes in semi-fluid state from several species of pine, especially *Pinus tæda*, *P. mitis*, *P. palustris*, and *P. rigida* of N. America, *P. pinaster*, *P. pinea*, and *P. Laricio* of s. Europe, and *P. sylvestris* of n. Europe. The process of collecting it is simple: a longitudinal slice of the bark and wood

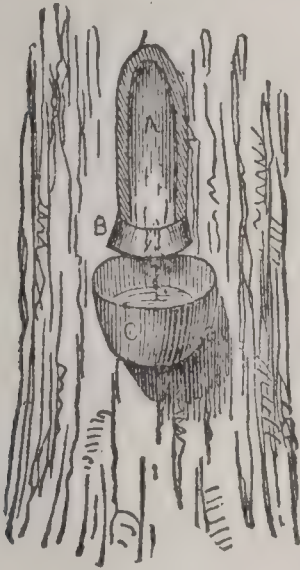


Fig. 1.



Fig. 2.

(A, fig. 1), about a ft. in length, is taken off by means of an ax with a curved blade (fig. 2); and at the bottom of the groove thus made, a small piece of bent wood or thin metal, as tin or zinc, is driven into a curved cut, made by one blow of the ax (B, fig. 1); this forms a sort of spout, which catches the liquid resin as it runs from the wound, and guides it into a small pot, made of common clay burned. At certain periods, these pots are emptied, and their contents put into casks, for transport to the distilleries, where the volatile essential oil is removed from the resin. The resin thus procured is much used in manufacture of common yellow soap, also for sizing paper and various other purposes, including preparation of ointments and plasters in pharmacy.

The other R. most generally known and used in America and Europe are Anime (q.v.), Copal (q.v.), Dammar (q.v.), Mastic (q.v.), Sandarac (q.v.), Frankincense (q.v.), Lac (q.v.). In addition, many are of essential service in other countries; as the Piney Resin or Dhoop, from *Vateria indica*; Black Dammar, from *Canarium strictum*; Saul Resin, or Dammar Batu, from *Shorea*

RESIST—RESOLUTION.

robusta—all serving many useful purposes in India, China, Japan, and other Asiatic countries. The forests of S. America furnish many others.

RESIST, v. *rě-zist'* [F. *résister*—from L. *resistĕrĕ*, to resist, to oppose—from *re*, back or again; *sisto*, I stand: It. *resistere*]: to act in opposition to; to strive or act against; to withstand; to make opposition: N. a sort of paste or mixture to preserve portions of white color in print-dyeing. RESIST'ING, imp. RESIST'ED, pp. RESIST'ER, n. -*ér*, one who resists. RESIST'IBLE, a. -*ĭ-bl*, that may be resisted. RESIST'IBLY, ad. -*blĭ*. RESIST'IBLENES, n. -*bl-nĕs*, or RESIST'IBIL'ITY, n. -*bil'ĭ-tĭ*, the quality of being resistible. RESIST'ANCE, n. -*āns* [F.—L.]: opposition; hindrance; quality of not yielding to force; the powers by which motion in a body is diminished or destroyed. RESIST'ANT, a. -*ānt* [F.—L.]: making resistance: N. one who or that which resists. RESIST'LESS, a. -*lĕs*, that cannot be effectually opposed or resisted. RESIST'LESSLY, ad. -*lĭ*. RESIST'LESSNESS, n. -*nĕs*, the state of being resistless.—SYN. of 'resist': to oppose; withstand; thwart; hinder; check; baffle; disappoint.

RESIST'ANCE OF FLU'IDS: see HYDROSTATICS: ATMOSPHERE.

RES JUDICATA, *rĕz jŭ-dĭ-kā'tā*, in Law: the subject-matter of an action already decided by a court of competent jurisdiction: in such a case, a plea setting up the *res judicata* is sufficient defense; but the suit in the former case must have been between the same parties.

RESOLUBLE, a. *rĕz'ō-lō-bl* [*re*, back or again, and *soluble*: F. *résoluble*—from mid. L. *resolu'bĭlis*, resolvable—from L. *resolvĕrĕ*, to resolve (see RESOLVE)]: that may be melted or dissolved.

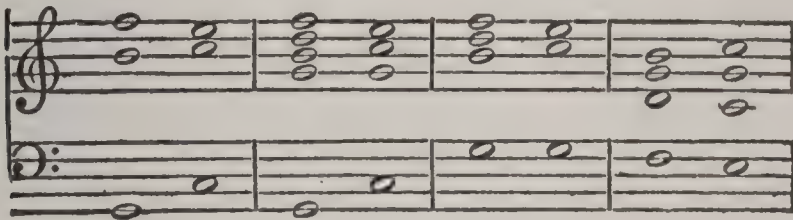
RESOLUTE, a. *rĕz'ō-lôt* [Sp. *resoluto*; It. *risoluto*; F. *résolu*, resolute, bold—from L. *re*, back; *solŭtus*, loosed; *solvĕrĕ*, to loose]: determined; decided; characterized by firmness and constancy in pursuing a purpose; undaunted: N. in *OE.*, a determined person; one determinedly bent on a purpose. RES'OLUTELY, ad. -*lĭ*, firmly; constantly; steadily. RES'OLUTENESS, n. -*nĕs*, the quality of being resolute in a fixed purpose; unshaken firmness.—SYN. of 'resolute': determined; decided; steady; steadfast; fixed; firm; bold; unshaken; persevering; constant.

RESOLUTION, n. *rĕz'ō-lô'shŭn* [F. *résolution*—from mid. L. *resolŭtiōnem* (see RESOLUTE)]: fixed determination; steadiness or fixedness of purpose; constancy in execution; firmness; a formal proposition brought before a public body for discussion and adoption. RESOLU'TIONER, n. -*ér*, one who joins in the declaration of others; one of a party of the Church of Scotland in the 17th c.—SYN. of 'resolution': decision; firmness; resolvedness; fortitude; steadfastness; purpose; resolve; perseverance; boldness.

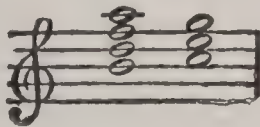
RESOLUTION.

RESOLUTION, n. *rěz'ō-lō'shŭn* [L. *resōlŭtus*, enervated, relaxed—from *re*, back; *solŭtus*, loosed; *solvērě*, to loose]: the act or process of disentangling or overcoming difficulties; the process of separating the component parts of bodies; analysis; in *med.*, the dispersion or disappearance of a tumor or inflammatory part; in *math.*, solution; in *dyn.*, the estimation of the various forces acting together at one point; a term frequently used as the opposite of COMPOSITION—as, *the resolution and composition of forces* (see COMPOSITION): in *music* (see below). *Note.*—The two preceding titles are identical in their etymology. **RESOLUTION**, 'fixed determination,' signifies primarily, 'the state of being let loose or free from restraint.'—**SYN.**: separation; analysis; dissolution; disentanglement.

RESOLU'TION, in Music: the passing from a discord into a concord; descent by a tone or a semitone of the discord heard in the preceding harmony, as the mode requires. In the progression of chords in a musical composition, there are certain chords that require to be followed by certain others, or, as it is called, *resolved* into them; otherwise, a sense of incompleteness is left on the ear. Thus the chord of the dominant seventh must be resolved by the tonic harmony, the major third ascending a semitone to the key-note, and the seventh descending one degree to the third of the key:



The diminished triad is similarly resolved, and all chords immediately derived from the dominant harmony. The chord of the added ninth is resolved by descending a second to the fifth of the tonic:



RESOLVE—RESORT.

RESOLVE, v. *rě-zolv'* [L. *resolvĕrĕ*, to separate, to unfasten—from *re*, back; *solvo*, I loose: It. *risolvere*]: to reduce to simple parts or first principles; to analyze; to clear of difficulties; to explain; to determine in one's own mind; to fix in a determination; to decide; to purpose; to constitute by vote or formal declaration; in *med.*, to disperse or scatter, as a tumor; in *OE.*, to inform; to free from difficulty or doubt; to settle in an opinion: N. fixed purpose of mind; determination. **RESOLV'ING**, imp. **RESOLVED'**, pp. *-zolvd'*: **ADJ.** fixed or determined in purpose. **RESOLV'ER**, n. *-ĕr*, one who resolves. **RESOLV'ABLE**, a. *-ă-bl*, capable of being resolved; that may be reduced to first principles. **RESOLV'ABIL'ITY**, n. *-bĭl'ĭ-tĭ*, capability of being resolved. **RESOLV'EDLY**, ad. *-ĕd-lĭ*. **RESOLV'EDNESS**, *-nĕs*, fixedness of purpose; firmness. **RESOLV'ENT**, a. *-ĕnt*, in *med.*, having the power to dissolve or scatter, as a tumor: N. a medicine which dissolves a tumor. **TO RESOLVE A NEBULA**, in *astron.*, to cause a nebula by a powerful instrument to appear separated into distinct stars.—**SYN.** of 'resolve, v.': to analyze; explain; solve; disentangle; unravel; conclude; purpose; decide; determine; fix; confirm; melt; dissolve; disperse; reduce; constitute; form; decree.

RESONANT, a. *rĕz'ô-nănt* [F. *résonnant*, resounding—from L. *rĕsônans* or *rĕsônan'tem*, resounding or re-echoing—from *re*, back; *sono*, I sound: It. *risonante*, resounding]: returning sound; echoing back. **RES'ONANTLY**, ad. *-lĭ*. **RES'ONANCE**, n. *-năns*, the returning or prolongation of sound, as by the air acting on the bodies of stringed instruments. **RESONATOR**, n. *rĕz'ô-năt-ĕr*, instrument invented by Helmholtz for facilitating analysis of compound sounds. When fitted to one ear, the other being stopped, tones above or below the pitch of the resonator will be imperfectly heard; but a note corresponding to the peculiar note of the resonator will be intensified.

RESORCIN, *rĕz-awr'sin* [*resin*, and *orcin*: crystalline chemical compound, formulæ $C_6H_6O_2$ or $C_6H_4(OH)_2$. It is homologous with orcin, $C_7H_5O_2$, hence its name. R. is produced by the action of potassium hydrate on various resins, especially ammoniacum, and also synthetically. It is in triclinic crystals, colorless, but becoming pinkish on exposure to air, very soluble in water. R. is a valuable antiseptic; irritant only in strong solutions applied to mucous membranes or abrasions.

RESORT, v. *rĕ-zört'* [F. *ressortir*, to go forth again—from *re*, again; *sortir*, to go out: mid. L. *resortĭrĕ*, to be subject to a tribunal, to appeal—from L. *re*, again; *sors* or *sortem*, a lot: also referred to L. *re*, again; *surgĕrĕ*, to rise]: to repair; to apply; to betake one's self; to have recourse; to frequent; in *OE.*, to fall back: N. act of resorting; a place much frequented; concourse. **RESORT'ING**, imp. **RESORT'ED**, pp. **RESORT'ER**, n. *-ĕr*, one who resorts. **LAST RESORT**, final tribunal; that from which there is no appeal; final means.

RESOUND—RESPECT.

RESOUND, v. *rě-sound'* [*re*, again, and *sound*]: to sound again.

RESOUND, v. *rě-zound'* [L. *resōnārě*, to resound—from *re*, back or again; *sonārě*, to sound: It. *risonare*: F. *résonner*]: to send back sound; to echo; to reverberate; to praise or celebrate by the sound of the voice or an instrument; to spread the fame of; to be sent back, as sound; to be much and loudly praised: N. the return of sound; an echo. **RESOUND'ING**, imp.: N. the act of sounding back. **RESOUND'ED**, pp.

RESOURCE, n. *rě-sōrs'* [F. *ressource*, resource—from L. *re*, again; *surgērě*, to rise (see **SOURCE**)]: any source of aid or support; any person or object which may be resorted to for assistance, safety, or supply; an expedient; a contrivance. **RESOURCE'S**, n. plu. *-ěz*, available means; property; funds. **RESOURCE'LESS**, a. *-lěs*, destitute of resources.—**SYN.** of 'resource': expedient; device; contrivance; means; resort.

RESOW, v. *rě-sō'* [*re*, again, and *sow*]: to sow anew.

RESPECT, v. *rě-spěkt'* [F. *respecter*, to respect—from L. *respectārě*, to look back, to respect; *respectus*, respect, regard—from *re*, back or again; *specto*, *speciō*, I look at, I behold: It. *rispettare*]: to regard; to view or consider with some degree of reverence; to esteem for worth or superiority; to have relation to: N. that estimation or honor in which men hold the worth or good qualities of others; deference; partial regard; undue bias; in *Scrip.*, good-will or favor; in *OE.*, regard; attention; reverend character; consideration; motive. **RESPECT'S'**, n. plu. *-spěkts'*, deferential good wishes; complimentary regards. **RESPECT'ING**, imp. **RESPECT'ED**, pp. **RESPECT'ER**, n. *-ér*, one who respects. **RESPECT'ING**, prep. *rě-spěkt'ing*, with relation or regard to; regarding. **RESPECT'LESS**, a. *-lěs*, having no respect; without regard. **RESPECT'ABLE**, a. *-ă-bl* [F.—L.]: deserving respect; worthy of esteem and honor; moderately excellent; not mean; ordinary. **RESPECT'ABLY**, ad. *-blě*. **RESPECT'ABIL'ITY**, n. *-bíl'ĩ-tě*, the state of being respectable; the qualities in character which deserve or command respect. **RESPECT'FUL**, a. *-fúl*, marked by outward civility; deferential; courteous; civil. **RESPECT'FULLY**, ad. *-lě*. **RESPECTFUL'NÉSS**, n. *-něs*, the quality of being respectful. **RESPECT'IVE**, a. *rě-spěkt'iv*, having relation to a particular person or thing; not absolute; belonging to each, as their *respective* abodes; in *OE.*, worthy of reverence. **RESPECT'ING**, or **RESPECT'ANT**, in *her.*, position of two animals borne face to face; but beasts of prey rampant when so borne are said to be *rampant combatant*. **RESPECT'IVELY**, ad. *-lě*, as each belongs to each; particularly; relatively; not absolutely; in *OE.*, partially; with great reverence. **IN RESPECT OF**, or **IN RESPECT TO**, in relation to; with regard to.—**SYN.** of 'respect, v.': to esteem; honor; revere; venerate; regard;—of 'respect, n.': consideration; estimation; deference; attention; regard

RESPIRATION.

RESPIRATION: act of inhalation and exhalation. Its object, its organs, and its process, are here to be considered.—The two great objects of respiration or breathing are: first, introduction into the system of oxygen, by which the products resulting from the disintegration or breaking up of the muscular, nervous, and other tissues of the body are converted into compounds easily eliminated or removed by the excreting organs (as the kidneys, lungs, skin, etc.); and, secondly, removal of the most noxious and, consequently, the most important of these products, carbonic acid, through special respiratory organs, which, in most air-breathing animals, except insects, are lungs; while in water-breathing animals, excepting those very low in the scale of organization, they take the form of *branchiæ* or gills. In all the vertebrated animals, excepting in fishes, and in the amphibians during their young state, the respiratory organs are more or less complicated internal air-sacs, communicating through the throat with the external atmosphere. A few of the amphibians, such as the species of the genera *Proteus* and *Siren*, retain their *branchiæ* during their whole life; hence they are placed in the order *Amphipneusta*, a term indicating their double mode of breathing. The simplest known form in which the Lungs or internal air-sacs exist is as a pair of elastic membranous bags close beneath the vertebral column, communicating with the surrounding atmosphere by a tube known as the windpipe, or *trachea*, which opens through the larynx, or organ of voice, into the throat. These bags are lined by a delicate, thin, and moist membrane, called a mucous membrane, embedded in and partly beneath which is a vascular network, through which all the blood in the animal's body is in turn driven by the heart. The moist partition between the blood in this network and the air in the interior of the lungs is so thin, that after having (by its moisture) dissolved the oxygen of the air, it permits of its passage into the moving current of blood, while through the same agencies carbonic acid simultaneously passes in an opposite direction from the blood into the air. To complete the apparatus, there are certain muscles under whose action the bags are emptied of their vitiated contents, and refilled with pure air. Such are the respiratory organs as they occur in that remarkable animal, the *Proteus anguinus*, found in the dark caves of Carinthia, and belonging to the order *Amphipneusta*, referred to above. In the more highly organized animals and in man, we find these elementary essential parts complicated and modified in great variety of ways. Confining our present view to the respiratory process in man and mammals, we may consider the anatomical details under three different heads. *First*, There must be a special respiratory organ—the lungs—affording by its internal arrangement an immense extent of internal surface, covered by vascular network, through which the blood flows in innumerable minute streamlets,

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separated by only an extremely thin membrane from the atmospheric air that has been inhaled; *secondly*, There must be such an arrangement of the circulating system that fresh blood may be perpetually driven from the right side of the heart through the lungs, and onward to the left side of the heart; *thirdly*, There must be arrangements for the frequent and regular change of the air contained in the lungs. These three points will be considered in the above order.

A sufficiently large internal aërating surface might of course be obtained by increasing the size of the air-bags themselves, but this would involve an increase of size in the animal. In examining the lungs of different animals, two plans are observed for increasing the internal surface without increasing the total bulk of the lungs. According to one plan, the internal surface is, as it were, molded into cells, separated laterally by partitions, somewhat like the cells seen in a section of honeycomb, or more like the appearance presented by the second or honeycomb stomach of ruminating animals; according to the other plan enormous multitudes of little lung-sacs partitioned, as will be presently shown, in their interior, are clustered round the ultimate branch of a common air-tube, which communicates with all of them. If we can conceive a bunch of grapes with its stem and all its minute branches, and the grapes attached to the ends of these branches completely hollow, we get a good idea of this second plan, except so far as the partitioning of the terminal cells

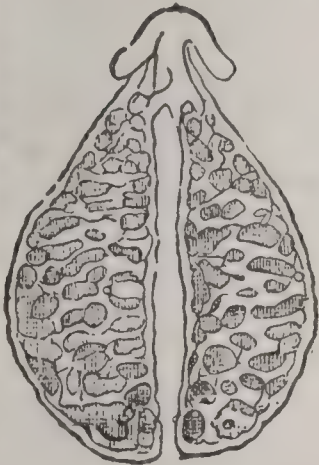


Fig 1.

(the grapes in the illustration) is concerned. By the former method, which occurs in amphibians and reptiles, the lung-sacs are merely rendered more cellular in their interior; while, by the latter plan, compound lungs are formed, as in birds, and in mammals, including man. Hence these two varieties of lung-structure correspond to the so-called cold-blooded and warm-blooded animals respectively. In fig. 1, representing a section of the lungs of the frog (magnified), and in fig. 5 under REPTILES, representing a section of the lungs of a turtle (diminished), we have illustrations of the first plan (the cellular lung-sac); while in figs. 2 and 3 we have diagrammatic illustrations of the human lung. Fig. 2 is a shaded diagram (copied from Marshall's series of *Physiological Diagrams*), to show the ramifications of the air-tubes in the human lungs. L is an outline representing the left lung; T. the main air-tube—called the windpipe or *trachea* (so called from the Greek word *tracheia*, rough, and similarly termed in Latin the *Arteria aspera*, though not an artery as we now employ the word)—descends through the neck from the larynx or organ of voice into the chest; B shows the

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right and left *bronchi*, or primary divisions into which the windpipe separates, one for each lung. Each bronchus enters the lung at the so-called root, and divides and subdivides into smaller branches, which never coalesce, but continue separate, like the branches and twigs of a tree. These are the *bronchial tubes* or the

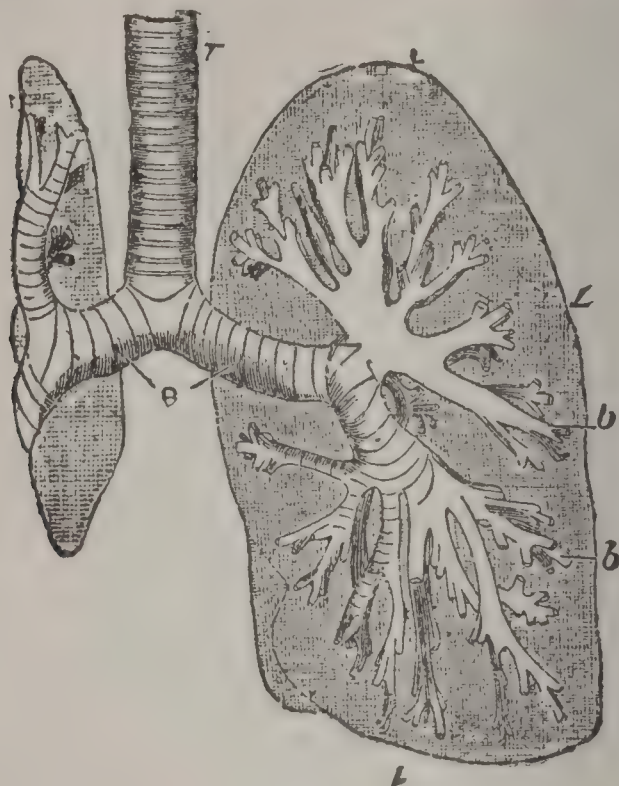


Fig. 2.

bronchiæ of some writers; the smallest shown in this diagram, *b, b*, undergo many further subdivisions, until (using Marshall's description) 'at length they form an immense number of minute tubes, not more than $\frac{1}{70}$ of an inch in diameter, each of which ends in a cluster of cells, or, as it may otherwise be described, opens into a small membranous sac, a little wider than itself, having a cellular internal surface very similar to that of the frog's lung, but of course on a microscopic scale.' In fig. 3 (also from Marshall's diagrams), there is a representation, magnified about 100 diameters, of three of these clusters of cells, or little lung-sacs, from the human lung. In this figure, *b* is a small air-tube, or bronchial tube, from which several of the finest or ultimate tubes proceed; *c* shows the outer surface of one of the lung-sacs, or *lobules* as they are commonly termed; *d*, the

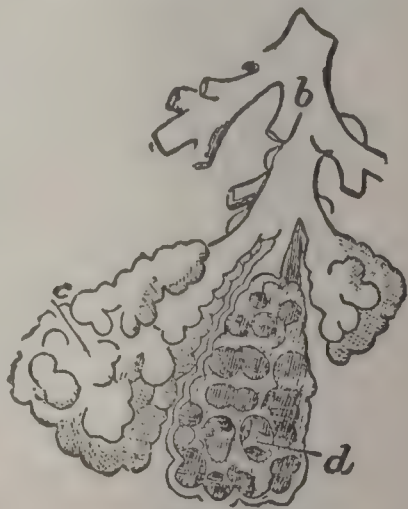


Fig. 3.

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inner surface of another, which has been cut open to show the ultimate recesses of the lung to which the air has access—viz., the *air-cells*. According to Rossignol, the ultimate bronchial ramifications terminate in a shape resembling that of an inverted funnel, and hence he applies the term, *infundibula* to these endings. In fig. 4 (from Rossignol's *Memoir*), there is a representation of the termination of an ultimate bronchial tube in the lung of a dog: *a* represents an ultimate tube, or lobular passage, branching toward the infundibula; *b* is the interior of one of the seven infundibula shown in the figure; while *c* represents one of the numerous septa or partitions projecting inward on the infundibular wall, and forming the air-cells. According to Todd and Bowman, the diameter of the lobular passages is from $\frac{1}{100}$ to $\frac{1}{200}$ of an inch, while that of the cells ranges from $\frac{1}{200}$ to $\frac{1}{300}$ of an inch. It is on the inner surface of these air-cells that the network of minute capillaries is spread in which the act of aëration takes place. Each lobule receives air through its own bronchial tube alone, and consequently there is no direct communication between the air-cells of adjacent lobules. These lobules are closely compressed on one another; and collectively, together with the connective tissue which unites them to one another, make up the great mass of the lungs. To such an extent is the process of subdivision carried out, that, according to calculation, the lungs of an adult man contain at least 600 millions of these air-cells. It is because of the air included in these cells that the pulmonary tissue has a soft spongy feel, and crackles when compressed between the fingers; and for the same reason, the lungs, and even small portions of them, even after strong pressure, float in water, it being extremely difficult to drive all the air out of the cells. The lungs (except in the fetal state, when no air enters them) are thus the lightest organs, in relation to their size, in the body. Although their bulk is so great that, with the heart, they occupy almost the whole cavity of the chest, they weigh only about three lbs. and a half in men, and two lbs. and three-quarters in women. Their color varies at different ages: at birth, they are of pinkish white tint; in adult life, of slate color, with mottled appearance; and in old age, they become of still darker tint. The polygonal markings seen on the surface correspond to the outer surface of the lobules above noticed. Their shape is adapted to that of the cavity in which they are lodged, each lung being conical in form, with its apex rising into the neck; while its base, broad and concave, rests on the convex surface of the diaphragm; and between the two lungs lie the heart and the great vessels that proceed from it. During life (except in certain diseases,

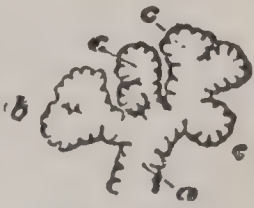


Fig. 4.

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e.g., PERICARDITIS, q.v.), the inner margins of the lungs nearly overlap the heart, leaving only a roundish space, less than two inches in diameter, of that organ uncovered, while their lower borders extend to the cartilages of the ribs, and fit into the angle formed between those cartilages and the diaphragm. Each lung is invested by its own serous membrane, the PLEURA (q.v.), which serves the double purpose of facilitating the movements which the lungs undergo in the act of respiration, and of suspending each lung in its proper position. In the latter function, the pleuræ are essentially assisted by the great air-tubes and blood-vessels, which collectively form what are termed the roots of the lungs.

The structure of the air-tubes and the lungs themselves next requires consideration. Beginning with the upper portion, we have to consider the *trachea*, or wind-pipe, which in the human subject descends in the middle line from the **Larynx** (q.v.) to the level of the third dorsal

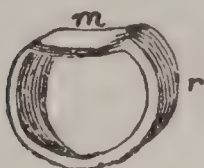


Fig. 5.—A separated Tracheal Ring.

r representing the cartilaginous, and *m* the posterior flattened membranous portion.

vertebra, where it divides into the right and left bronchi (fig. 2). It is kept permanently open by 16 to 20 cartilaginous rings, which surround two-thirds of the tube, and are incomplete behind, where the tube is completed by the same fibrous membrane which covers and unites the cartilages in front and on the sides. In this fibrous membrane are numerous tracheal glands (which probably furnish much of the vapor of the

breath, and may occasion its odor), together with unstriped muscular fibre, to which the term *trachealis* muscle has been given. The trachea measures about $4\frac{1}{2}$ inches in length, and is about three-quarters of an inch wide. Its mucous membrane is continuous through the glottis with that of the pharynx or throat, and is covered with ciliated columnar Epithelium (q.v.). Of the bronchi, the right is wider, shorter, and more horizontal than the left. Their walls are composed on the same plan as those of the trachea. Upon entering the lung, each bronchus divides as above described. The walls of these bronchial tubes become thinner as they approach the air-cells. The cartilaginous portions which, in the primary divisions of each bronchus, partially retained the annular form, become gradually reduced to mere flakes, and finally cease in tubes of $\frac{1}{8}$ or $\frac{1}{10}$ of an inch in diameter. The unstriped muscular fibres occurring in the trachea are continued downward to the minutest tubes, forming a very thin layer, completely surrounding the canal, and the ciliated epithelium extends equally far. The terminal bronchial tube loses its epithelium and muscular coat at about $\frac{1}{8}$ of an inch from the most distant air-cell to which it leads, and is thus reduced to a single coat, consisting of the basement membrane (see MUCOUS MEMBRANES), with yellow elastic

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fibres blended with it. Of this structure, the interlobular passages and the air-cells are composed.

The mode in which the blood is perpetually changed in the lungs next demands consideration. The venous or impure blood collected from all parts of the body in the right side of the heart, is conveyed to the lungs by the pulmonary artery, which is about the size of the aorta, and, like that vessel, is furnished with three semilunar valves at its origin, which prevent the blood from regurgitating into the right ventricle of the heart (see CIRCULATION). The pulmonary artery divides, before entering the lungs, into a right and a left branch, which ramify as far as the lobules in company with the bronchial tubes. At this point, they distribute themselves on the outside of the lobules, in the so-called *interlobular fissures*, and penetrating between the air-cells, form a capillary network on and in the walls of the cells and of the lobular passages. This network empties its blood, which is now aërated, into minute venous radicles, which converge to form larger veins, and these finally form the four pulmonary veins, which discharge their arterialized blood into the left side of the heart. The walls which support the capillary network of the lungs are (as Todd and Bowman observe) ‘for the most part much too thin to enclose the capillaries between the two layers of their substance, and therefore the capillaries project fairly into the air cells by a great part of their circumference, being adherent to the wall by a narrow line only. The capillary wall is thus exposed and bare, in contact with the air of the cell, and nothing besides the delicate membrane of the capillary intervenes between the air and the blood. A capillary frequently passes through an aperture in the cell-wall, so as first to project into one cell, and further on into a contiguous one, but never becomes altogether free from the wall.’—*Phys. Anat.* II. 393. The diameter of these capillaries is about $\frac{1}{1800}$ of an inch, which is comparatively large, and admits of the passage of blood freely; and the air and the blood may be said to be in contact, since they are separated by only a delicate capillary wall, less than $\frac{1}{20000}$ of an inch in thickness. If the rate of the blood in the capillaries be taken at an inch and three-quarters per minute (according to the estimate of Valentin, drawn from observation of the frog’s foot), it has been calculated that the blood would at each circuit remain in contact with the air about one second and a half. Probably, however, the motion of the blood is quicker in the pulmonary capillaries of man and other mammals and of birds than in those of the frog’s foot.

In addition to the pulmonary artery and pulmonary veins, which convey the blood to and from the lungs for the purpose of aëration, there are other vessels, known as the bronchial vessels, for the nutrition of the lung itself, the distribution of which, and their mode of communication with the pulmonary vessels above described, have been subjects of much discussion; but into this we

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need not enter. The lungs are supplied with nerves from the anterior and posterior pulmonary plexuses, lying at the root of the organ, and composed of filaments of the pneumogastric and sympathetic nerves. The filaments from these plexuses accompany the bronchial tubes, in which they are finally lost. The part which these nerves act in the respiratory process will be considered after a description of the *movements of respiration*, by which the air in the lungs is being perpetually changed.



Fig. 6.

Diagrams (by Hutchinson) showing the extent of antero-posterior movement in ordinary and in forced respiration in male and female. The back is supposed to be fixed, in order to throw forward the movement as much as possible. The black line indicates, by its two margins, the limits of *ordinary inspiration and expiration*. In *forced inspiration*, the body comes up to the dotted line, while in *forced expiration* it recedes to the smallest space indicated.

For description of the shape and framework of the chest, see CHEST. The chest (or thorax, as it is termed by anatomists) is so constructed as to be capable of enlargement in height (vertically), in depth (or from the front backward), and in width (or from side to side). Its height is increased mainly by the descent of the diaphragm, and to a certain extent by the elevation of the ribs, and the widening of the intercostal spaces; while its depth and width are increased by the elevation of the ribs, which carry forward and elevate the breast-bone (or sternum), especially at its lowest end, and are slightly rotated on an imaginary axis, joining their ex-

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tremities, by which their central portion is raised, and slightly removed from the mesial plane of the chest. It is only in forced or deep inspiration that all these means of enlarging the chest are called into play. An ordinary inspiration is attended in men with very slight elevation of the ribs (about one-twentieth of an inch), while in women the elevation is much greater, especially in the upper ribs; the cause of this difference in the sexes probably lying in the narrower waist of the female requiring a compensation in the upper part of the chest. Beau and Maissiat describe three varieties of ordinary R.: 1. Abdominal, or that effected chiefly by the diaphragm, and seen in the motion of the walls of the belly; 2. Costo-inferior, or that in which the seven lower ribs are observed to act; 3. Costo-superior, or that effected in considerable degree by the upper ribs. The first variety occurs in infants till the end of the third year, and in males generally; the second in boys after the age of three, and in men; and the third in adult females. The difference between the depth of a forced and an ordinary inspiration is shown in the accompanying figures. The total power of the various respiratory muscles has been measured by several physiologists, among whom Dr. Hutchinson deserves special notice. He finds, as the average of 1,500 experiments, that the power of expiration is nearly one-third stronger than that of inspiration; and he is of opinion that when the expiratory are not stronger than the inspiratory muscles, some disease is present. He tested the force of the two classes of respiratory muscles by causing persons to make the most powerful efforts of which they were capable, when breathing through the nose into an instrument termed a spirometer; and by this means he found that men of five ft. seven or eight inches in height have the greatest inspiratory power, it being equal, on an average, to a column of mercury of 2·75 inches, while their expiratory power was equal to 3·97 inches. The following table is given by him as exhibiting the range through which these powers may vary within the limits of health:

Power of Inspiration.		Power of Expiration.
1·5 inches	Weak	2·0 inches
2·0 "	Ordinary	2·5 "
4·5 "	Remarkable	5·8 "
7·0 "	Very extraordinary	10·0 "

The co-operation of the resilience of the lungs and the elasticity of the walls of the chest with the expiratory muscular movement, is probably the cause why the expiratory power, as tested by the height of a column of mercury, is greater than the inspiratory power. Dr. Hutchinson calculates that a man who raises three inches of mercury by an effort of inspiration exerts a force equal to 1,000 lbs.; while the one remarkable case

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in which the mercury rose to seven inches, indicated a force of 2,200 lbs., or nearly two tons.

The following points in connection with the respiratory movements require notice. Every complete act of R. is divisible into four parts—1. Inspiration; 2. A short pause, not always observed; 3. Expiration; 4. A considerable pause, occupying, according to Vierordt, about one-fifth of the whole time required for one complete respiratory act. The act of expiration is always more prolonged than that of inspiration, the former being to the latter in the ratio of 12:10 in adult males; and as 14:10 in children, women, and aged persons. The number of respiratory acts performed in a minute varies at different ages. According to Quetelet, at birth there are 44 respirations in one minute; at 5 years of age, 26, from 15 to 20 years 20; from 20 to 25 years 18.7; from 25 to 30 years 16; from 30 to 50 years 18.1: so that from 16 to 20 may be taken as the ordinary range for healthy adults, though Hutchinson gives the wide range of 6 to 40. The average ratio which the number of respirations bears to the number of pulsations in a given time is about $1:4\frac{1}{2}$, and if there is any great deviation from this ratio, there is probably some obstruction to the aëration of the blood, or some disorder of the nervous system. Thus, in pneumonia (or inflammation of the lungs), in which a greater or less amount of pulmonary tissue is unfitted for its office, the number of the respirations increases in a more rapid proportion than the number of pulsations, so that the ratio becomes as 1:3, or even as 1:2. In hysteria, a similar or even greater deviation from the normal ratio may occur; and Elliotson records a case in which the respiratory movements were 98, or even 106, whilst the pulse was 104. On the other hand, in certain typhoid conditions, and in narcotic poisoning, the respiratory acts are diminished in number; the ratio of respirations to pulsations being as 1:6, or even 1:8.

We have next to inquire into the mode in which the muscular movements of R. are kept up by nervous power. 'There can be no doubt,' says Dr. Carpenter, 'that these movements, though partly under the control of the will, are essentially "automatic" in their nature. Their chief centres consist of two ganglia; corresponding to the origins of the pneumogastric nerves, which are the principal excitator nerves which convey the stimulus on which these movements are dependent; while from the adjacent parts of the medulla oblongata and spinalis proceed the chief motor nerves by which they are carried into effect. And thus it happens that the whole of the encephalon may be removed from above, and the spinal cord (as far up as the origin of the phrenic nerve) from below, without suspending the most essential of the respiratory movements.'—*Principles of Human Physiology* (6th edit., 1864, p. 274). It would carry us far beyond our assigned limits to notice the interesting series of phenomena that follow

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the division or irritation of the various branches of the pneumogastric nerve; but it may be noted that when the trunks of this nerve are divided on both sides, the respiratory movements still go on, though with diminished activity. Hence, there must be other excitors to the action of the respiratory muscles. Among these, the nerves distributed to the general surface, particularly to the face, probably perform an important part; and in exciting the first inspiration, the fifth pair seem the principal agent. In support of this view, Dr. Carpenter adduces the well-known fact, that the first inspiratory effort of the new-born infant is most vigorously performed when the cool external air comes in contact with its face. Dr. Marshall Hall, in his *New Memoir on the True Spinal Marrow*, p. 29, relates a case in which the first inspiration was delayed simply because the face was protected from the atmosphere by the bedclothes; the instant they were lifted up, the infant breathed. Many familiar facts demonstrate the influence of the superficial nerves on the respiratory system in the adult as well as in the infant. 'Every one,' to use Dr. Carpenter's words, 'knows that the first plunge into cold water, or the first descent of the stream of the shower-bath, or even the dashing of a glass of cold water in the face, will produce inspiratory efforts; and this fact has many important practical applications. Thus, in the treatment of asphyxia, whether congenital or the result of narcotic poisoning, drowning, etc., the alternate application of cold and heat is found to be one of the most efficacious means of restoring the respiratory movements; and a paroxysm of hysterical laughter may be cut short by dashing a glass of cold water in the face.' The principal motor or efferent nerves concerned in bringing out the respiratory movements are the phrenic, going to the diaphragm; the intercostal, supplying the intercostal muscles; the facial and the spinal accessory nerves; though, as above mentioned, the superficial nerves generally exert a motor or efferent action.

How far the respiratory movements are under the influence of the will, has given rise to much discussion. That, in their ordinary mode of performance, they are independent of the will, is obvious from their systematic occurrence during sleep, in cases of paralysis in which the power of the will is lost, in apoplexy, etc. At the same time, universal experience teaches us that these movements are partly, but not entirely, under the control of the will. We can, with little inconvenience, suspend the respiratory actions for a minute or even longer if we have previously introduced into the lungs a full supply of fresh air; but if the suspension be further prolonged, the stimulus conveyed by the excitor nerves to the nervous centres becomes so strong, that by no effort of the will can we avoid making inspiratory efforts. It is asserted by Bourdon, eminent French physiologist, in *Recherches sur le Mécanisme de la Respiration*, that no person ever succeeded in committing suicide by simply holding

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the breath, but that such persons have attained their object by holding the face under water, because here another set of muscles is called into play, which are much more under the control of the will than those of respiration. If we seek for the reason why, in man and the higher animals, the respiratory actions are placed under direction of the will, it may probably be found in the necessary physiological connection that exists between them and the production of those vocal sounds by which individuals (men or animals) can communicate their feelings and wishes to one another.

We complete the subject so far as human physiology is concerned, by noticing (1) the greatest quantity of air that can be expelled by a forcible expiration; (2) the total quantity that passes through the lungs in a given time; (3) the effects of R. on the air; and (4) the effects of suspension or deficiency of respiration.

When the lungs have been emptied as much as possible of air by the most powerful expiratory effort, they still contain a quantity over which we have no control, and which may be estimated at about 40 cubic inches though according to Hutchinson, as will be presently seen, this estimate is far too small. To this portion of the contents of the lungs the term *Residual Air* is applied. In addition to this residual air, physiologists distinguish, in connection with the respiratory process, *Supplemental Air*, which is that portion which remains in the chest after an ordinary gentle expiration, but which may be displaced at will; *Breathing* or *Tidal Air*, which is the volume displaced by the constant gentle inspiration and expiration; and *Complemental Air*, or the quantity which can be inhaled by the deepest possible inspiration, over and above that introduced in ordinary breathing. The greatest volume of air that can be expelled by the most powerful expiration, which is obviously the sum of the supplemental, breathing, and complemental air, is designated as the *Vital Capacity*—a term originally introduced by Dr. Hutchinson, inventor of the spirometer, who found, from nearly 5,000 observations, that of all the elements or factors which might be supposed to influence it, *height* alone stood in a definite and constant relation to it, this relation being expressed by the rule, that, ‘for every inch of stature from 5 to 6 ft. 8 additional cubic inches of air (at 60° Fahr.) are given out by a forced expiration after a full inspiration.’ Thus, the vital capacity for a man from 5 ft. to 5 ft. 1 inch being 174 cubic inches that for a man from 5 ft. 1 inch to 5 ft. 2 inches is 182 cubic inches; and so on. With regard to bodily weight as a factor, Dr. Hutchinson found, that ‘when the man exceeds the average weight (at each height) by 7 per cent., the vital capacity decreases 1 cubic inch per lb. for the next 35 lbs. above this weight.’ Age and muscular development do not influence the result so much as might have been expected. It has been frequently observed that the vital capacity is small in athletic men, and that it has been

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in excess in persons in no way remarkable for physical power. The *maximum* vital capacity met with by Dr. Hutchinson was 464 cubic inches; this was in a man 7 ft. high, whose weight was 308 lbs.: the *minimum* was 46 cubic inches, in the case of a dwarf whose height was only 29 inches, and who weighed 40 lbs.

In estimating the effects of the respiratory process on the air which passes through the lungs, we adopt the data afforded by observations of Dr. Edward Smith, who has arranged a spirometer by which the quantity of air inspired may be registered from 1 to 100,000 cubic inches, and therefore for any period. This instrument, says Dr. Carpenter (to whom Dr. Smith has communicated many of the following statements for insertion in the new ed. of his *Human Physiology*), 'he has used for 24 hours without intermission, except for meals, and he has ascertained the quantity of air inspired during sleep and in almost every condition met with during the day. From numerous experiments upon several persons, each extending over a whole day, he found that the average depth of inspiration was 33·6 cubic inches when at rest; and when walking at 1, 2, 3, and 4 miles an hour, 52, 60, 75, and 91 cubic inches, and even 107 cubic inches when working the tread-mill. If we take 30 or 40 cubic inches as the average quantity exchanged at each R., we cannot but observe how small a proportion it bears to the entire amount which the lungs usually contain, for the "residual air" which cannot be expelled is estimated by Dr. Hutchinson at from 75 to 100 cubic inches; and the "supplemental air," which can only be expelled by a forced expiration, is about as much more; the sum of the two being from 150 to 200 cubic inches, or from 5 to 7 times the "breathing volume."' Now, it is obvious that if no provision existed for mingling the air inspired with the air already occupying the lungs, the former would penetrate no further than the larger air-passages, and, as this would be again thrown out at the next expiration, the bulk of the air contained in the lungs would remain altogether without renewal, and the expired air would not be found to have undergone any change. The law of the *Diffusion* (q.v.) of *Gases* here comes into action, for the air in the air-cells and finer tubes being charged by the respiratory process with a great excess of carbonic acid, as compared with the inspired air contained in the larger tubes, a diffusion of the carbonic acid necessarily takes place in the outward direction, while the oxygen from the air, or the air itself, similarly diffuses itself in an opposite direction, toward and into the air-cells themselves.

The *total amount* of air which passes through the lungs in 24 hours must obviously vary with the extent and frequency of the respiratory movements. Dr. Smith found that during the day (6 A.M. to 12 P.M.) the average quantity of air inspired by several persons at rest was 502 cubic inches per minute, or a total of 542,160 cubic inches; and as the average quantity during

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the night was about 400 inches per minute, the total daily amount was 686,000 cubic inches. This quantity is largely increased by exertion, and Dr. Smith computes that the total amount actually respired by the unoccupied gentleman, the ordinary tradesman, and the hard-working laborer, would be 804,780, 1,065,840, and 1,568,390 cubic inches respectively.

The *alterations* in the inspired air effected by R. consist essentially in the removal of a portion of the oxygen, and its replacement by a nearly corresponding bulk of carbonic acid. The amount of carbonic acid in the expired air varies inversely with the number of respirations; it reaches 5.5 per cent. (or more) when the respirations are only 6 in the minute, while it falls as low as about 2.6 per cent. when the respirations are 96 in the minute. About 4.35 per cent. of carbonic acid is, on an average, added to the air in ordinary R., while about 4.782 per cent. of oxygen is removed; the actual diminution of bulk of the expired air (after the removal of the moisture obtained from the lungs) being about $\frac{1}{15}$ of its volume. Hence, unless where there is free ventilation, the air in an apartment containing men or animals must soon become vitiated by containing a great excess of carbonic acid (for ordinary atmospheric air contains only about one part of carbonic acid in 2,500 parts), and a deficiency of oxygen. The absolute quantity of carbonic acid (consequently of carbon) exhaled in 24 hours is liable to great variations, caused by the temperature and moisture of the air, age, sex, muscular development, the nature and quantity of the food, muscular exercise, sleep, state of health, etc. Dr. Smith calculates that an adult man in a state of rest exhales in 24 hours an amount of carbonic acid equivalent to 7.144 oz. of carbon; and he estimates that it should be increased to 8.68 and 11.7 oz. for the non-laboring and laborious classes respectively, at their ordinary rate of exertion. We may add that the total amount of carbonic acid is greatly increased by external cold, and diminished by heat; that it is increased by a moist, and diminished by a dry atmosphere; that it increases in both sexes to about the 30th year, when it remains stationary for 15 years, after which it diminishes; that at all ages beyond 8 years it is greater in males than in females, and that it increases during pregnancy; that it is greater in robust than in slender men, the quantity of carbon expired *per diem* to each 1 lb. of bodily weight being (according to Smith) 17.07, 17.51, and 17.99 grains at 48, 39, and 33 years of age respectively; that it is greatly increased by eating (see **MUSCLE—MUSCULAR TISSUE—Muscular Force**), and is diminished by fasting; that it is increased by muscular exertion (Smith found that when walking three m. an hour he excreted 2.6 more carbonic acid than when at rest; while tread-wheel labor occasioned about double the excretion caused by walking); that it is diminished by sleep; and that it is increased

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in the exanthematous fevers (measles, small-pox, scarlatina, etc.), and in chlorosis; while it is diminished in typhus and in chronic diseases of the respiratory organs.

There has been much discussion with regard to the extent to which the nitrogen of the air is affected by R. Usually a small amount of this gas is given off, but the quantities absorbed and exhaled so nearly balance each other, that its special action on the organism must be very slight, further than as being a diluter of the oxygen, which would be too stimulating if breathed in a pure state.—As to the watery vapor with which the exhaled air is saturated, the amount exhaled in 24 hours may range from about 6 to 27 oz., its usual range being between 7 and 11 oz. It is not pure water, but holds in solution considerable carbonic acid and an albuminous substance in a state of decomposition, which, on exposing the fluid to an elevated temperature, occasions a very evident putrid odor.

For the diseases of the lungs and other respiratory organs, see PNEUMONIA: PLEURISY: BRONCHITIS: CONSUMPTION: TUBERCLE: also INFLAMMATION: CONGESTION OF BLOOD: HÆMOPTYSIS: ETC.

RESPIRATION, ARTIFICIAL: a requisite in all cases of suspended animation, from drowning, noxious gases, chloroform, etc. It may be performed either by forcing air into the lungs by means of a pipe passed through the mouth or the nostril into the glottis, or (which is usually preferable) by imitating the natural expansion of the chest by muscular effort, as by the methods invented by Dr. Marshall Hall and by Dr. Sylvester.

The best mode of forcing air into the lungs is by the use of a small pair of bellows, with the nozzle inserted in one of the patient's nostrils. The air should be driven into the lungs with extreme gentleness, the larynx being pressed backward against the spine, so that the air may not go into the œsophagus and stomach. Gentle but firm pressure must be then applied to the chest to expel the introduced air, and fresh air again driven in; and this process of introducing and expelling the air alternately must be continued until either natural respiratory efforts appear, or the case becomes hopeless.

In the article ASPHYXIA, it is stated that one of the best methods of filling the lungs of an asphyxiated person with fresh air is that of Dr. Marshall Hall. Dr. Sylvester's method (*The True Physiological Method of Restoring Persons Apparently Drowned or Dead, and of Resuscitating Still-born Children*,—London 1859) is, however, generally regarded as decidedly preferable to that of Dr. Marshall Hall, though the same in principle. The following are Dr. Sylvester's rules, slightly modified by a committee whose investigations will be presently noticed. The patient is laid on his back on a plane, inclined a little from the feet upward; the shoulders are gently raised by a firm cushion being placed under them; the tongue is brought forward, so as to project a little from the side of the mouth. The operator then grasps the

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patient's arms just above the elbows, and raises them till they nearly meet above the head. This action imitates inspiration. The patient's arms are then turned down, and firmly pressed for a moment against the sides of the chest. A deep expiration is thus imitated; and these two sets of movements should be perseveringly continued at the rate of about 15 times in a minute.



Fig. 1.

Special reference must be made to two important documents among the publications on this subject. The first is *Reports of the Scientific Committee on Suspended Animation*, presented to the Royal Medical and Chirurgical Society of London 1862, July; and when it is stated that this report was signed by 'C. J. B. Williams, Chair-



Fig. 2.

man, W. S. Kirkes, George Harley, J. B. Sanderson, C. E. Brown-Séquard, H. Hyde Salter, E. H. Sieveking, and W. S. Savory, *Honorary Secretary*, its scientific claims to our attention are undeniable. The following are their suggestions in relation to treatment: 1. That all obstruction to the passage of air to and from the lungs be at once, so far as is practicable, removed; that the mouth and nostrils, e.g., be cleansed from all foreign matters or adherent mucus. 2. That in the absence of natural respiration, artificial respiration by Dr. Sylvester's method (above described) should be employed. 3. That if no natural respiratory efforts supervene, a dash of hot water (120° F.) or cold water be employed, for the purpose of exciting respiratory efforts. 4. That the temperature of the body be maintained by friction, warm blankets, the warm bath, etc. [Whether the warm bath is serviceable or positively hurtful is, however, still in question.] 5. That in the case of drowning, in addition

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to the foregoing suggestions, the following plan may in the first instance, be practiced: Place the body with the face downward, and hanging a little over the edge of a table, shutter, or board, raised at an angle about 30° , so that the head may be lower than the feet. Open the mouth, and draw the tongue forward. Keep the body in this posture for a few seconds, or a little longer if fluid escapes. The escape of fluid may be assisted by pressing once or twice upon the back.

The other document is *Instructions for the Restoration of the Apparently Dead from Drowning*, issued 1864 by 'The National Lifeboat Institution' of Great Britain. In these *Instructions* it is recommended that if breathing cannot be excited by application of stimulants to the nostrils, or by dashing water on the face, Marshall Hall's method should be tried; and that if this do not prove successful in from two to five minutes, Dr. Sylvester's method should be resorted to.

In conclusion, a reference must be made to *Reports of the Scientific Committee* [of the members of the Royal Medical and Chirurgical Society] *on the Uses and Effects of Chloroform*. The committee decide that the most certain means of restoring life after poisoning with anæsthetics is by artificial respiration. 'By this means, resuscitating may generally be accomplished after natural respiration has ceased, provided the heart continue to act; and it may *sometimes* be effected even after the cessation of the heart's action. Galvanism resuscitates within the same limits as artificial respiration; it is, however, far less to be relied on in equal cases. Galvanism may be used in addition to artificial respiration; but the latter is on no account to be delayed or suspended, in order that galvanism may be tried.'—*Proceedings of the Royal Medical and Chirurgical Society*, IV.

RESPIRATOR: name given by its inventor, Jeffreys, to an instrument which gives warmth to the air drawn into the lungs in breathing. It is attached to the mouth and is composed of several layers of very fine wire, fixed so near together that the exhaled air passing through them is diffused over a very large amount of surface, its warmth being absorbed by the metal, which, being an excellent conductor of heat, freely returns it to the cold air, drawn in through it in the act of inspiration. Mr. Jeffreys considers it necessary that about 20 layers of metal-work should be used, and, in order to make the instrument as light and compact as possible, each layer must be extremely thin. To 8 to 12 frames of sheet-silver, layers of fine wires are soldered about $\frac{1}{200}$ of an inch apart, and these wires are so numerous that a large respirator of high power contains 2,000 ft. of wire, divided into about 12,000 pieces, and soldered to the frames at more than 80,000 points. The air that is inhaled, meeting with layers of wire of gradually increasing heat, is raised to a high temperature. The whole wire-work is curved, so as to fit closely to the face, and is inclosed in a border or case of soft leather; and an

RESPIRATORY SOUNDS.

outer coat, usually of a very fine open woollen fabric, is added. The form of instrument chiefly used is fixed over the mouth, and is named *The Oral Respirator*. For an instrument to cover both mouth and nostrils, the term *Orinasal Respirator* is used. The use of these instruments is in allowing persons with delicate lungs to take out-of-door exercise with safety and advantage in comparatively severe weather.—Tyndall invented a *Smoke Respirator* for firemen: there are respirators for keeping out dust and metal-filings from the lungs of factory operatives: and respirators containing a sponge soaked with creosote or carbolic acid for excluding or destroying bacteria germs.

RESPIRATORY SOUNDS: sounds proceeding from the lungs or the bronchi. They are of the greatest importance in diagnosis of diseases of the lungs. They may be divided into (1) those directly resulting from inspiration and expiration; (2) those of the voice, including coughing.

In the healthy state of the lungs, two distinct sounds are heard, on applying the ear, either directly or through intervention of the stethoscope, to the walls of the chest—one called the *vesicular sound*, because it is supposed to be caused by the passage of the air from the ultimate tubes into the air-cells or vesicles; and the other the *bronchial sound*, because it is generated in the bronchial tubes by the air moving through them.

The vesicular sound, known also as the *respiratory murmur*, is produced mainly during inspiration; being very faint, and sometimes scarcely perceptible during expiration. It is rather a rustle than a murmur, and has been compared to the sighing of a gentle breeze among leaves, to the sound made in the deep inspiration of a sleeping person, etc.; but a single minute's application of the ear to the chest of a healthy person, below the collar-bone, will give clearer idea of its true nature than any mere description could convey. The sound is more distinct in thin than in fat persons, in women than in men, and in children than in adults. Indeed, it is so loud in children that when an unusually noisy sound is heard in an adult, it is said to be *puerile*.—The *bronchial sound* has a blowing character, such as may be produced by blowing air quickly through a tube, and is altogether distinct from the former: it may be most clearly heard over the trachea or windpipe, and at the upper part of the sternum or breast-bone.

Such are the R. S. in the healthy lungs. In disease, any change which tends to impair the respiratory function in one part of the lungs will make the vesicular murmur abnormally weak there, and abnormally loud in the remainder; and there are other changes, besides a mere increase or decrease of intensity, that sometimes occur, into which we have no space to enter.—The bronchial sound also is liable to morbid alteration; e.g., it may be heard in parts of the chest where it is usually inaudible, in consequence of condensation

RESPIRE—RESPITE.

of the surrounding pulmonary tissue, or from dilatation of the tubes, independently of condensation; and in violent dyspnœa, it may sometimes be heard over the whole chest without any change of structure. These morbid sounds are only modifications of those which occur in health.—There are, however, other sounds generated by disease which are highly important in diagnosis: these are termed *Râles* by the French, and *Rattles*, *Sibilus*, *Rhonchus*, etc., by those English writers who do not adopt the French term. They may be briefly divided into the *dry* and the *moist râles*, the former being caused by the passage of the air with increased rapidity through narrowed portions of the bronchial tubes; while the latter are formed by the passage of air through a fluid of more or less tenacity in the bronchial tubes, causing the formation of a succession of bubbles, whose bursting occasions the sound.

There are two other morbid sounds connected with the respiratory system which should be noted—viz., *metallic tinkling* and the *friction sound*. Metallic tinkling is a quick sharp sound, resembling that produced by striking a glass vessel with a pin: its occurrence affords evidence of the existence of a cavity of considerable size, containing air, and surrounded by firm walls; but how the sound is produced is not definitely settled. The friction sound is produced by the rubbing together of the pulmonary and costal pleuræ when rough from inflammatory action, and is indicative of pleurisy.

RESPIRE, v. *rě-spīr'* [F. *respirer*—from L. *respirārē*, to respire—from *re*, back or again; *spīrō*, I breathe: It. *respirare*]: to breathe out; to draw air into the lungs and expel it again; to take breath, hence to rest. RESPIRING, imp. RESPIRED', pp. *-spīrd'*. RESPIR'ABLE, a. *-ă-bl* [F.—L.]: fit for breathing or for the support of animal life. RESPIR'ABLENESS, n. *-bl-nēs*, or RESPIR'ABIL'ITY, n. *-bīl'ī-tī*, the state or quality of being respirable. RESPIRATION, n. *rēs-pī-rā'shūn* [F.—L.]: act of breathing (see above): relief from toil. RES'PIRATOR, n. *-rā-tēr*, an apparatus for covering the mouth, which serves to warm the air before being inhaled into the lungs. RESPIR'ATORY, a. *-tēr-ī*, pert. to or serving for respiration.

RESPITE, n. *rēs'pīt* [OF. *respīt*, respite—from L. *respectus*, regard, consideration—from *re*, back or again; *speciō*, I look: F. *répīt*; It. *rispitto*, respite]: delay, as for breathing; pause; interval; temporary suspension of the execution of the capital sentence on a criminal; a reprieve: V. to suspend; to delay for a time; to relieve by an interval of rest. RES'PITING, imp. RES'PITED, pp.—SYN. of 'respite, n.': a stop; interval; pause; delay; stay; cessation; reprieve.

RESPLENDENT—RESSAIDAR.

RESPLENDENT, a. *rě-splěň'děnt* [L. *resplen'dens* or *splenden'tem*, shining brightly—from *re*, back or again; *splendēō*, I shine]: very bright; having a beautiful lustre; shining with brilliancy. **RESPLEN'DENTLY**, ad. *-lī*. **RESPLEN'DENCE**, n. *-děns*, or **RESPLEN'DENCY**, n. *-děn-sī*, brilliant lustre; vivid brightness.

RESPLIT, v. *rě-splīt* [*re*, again, and *split*]: to split or rend a second time.

RESPOND, v. *rě-spōnd'* [OF. *respondre*—from L. *respondērē*, to answer or reply—from *re*, back or again; *spondēō*, I promise solemnly: It. *rispondere*: F. *répondre*]: to answer; to rejoin; to reply: N. in *Gothic arch.*, a half-pier attached to a wall and supporting an arch, etc.; in *sacred music*, a short anthem interjected in some service. **RESPOND'ING**, imp. **RESPOND'ED**, pp. **RESPOND'ENT**, a. *-ěnt*, that answers to demand or expectation: N. one who replies: in *law*, one who answers; the party against whom another party presents a petition to a court which requires to be answered. **RESPONDENTIA**, n. *rě'spōn-děň'shī-ā*, a contract by which a loan is effected by a bond on the security of the freight of a ship; money borrowed on the ship itself is termed *bottomry*. Such loans are resorted to by the master of a ship only in critical circumstances, to raise money for saving ship or cargo for benefit of all concerned.

RESPONSE, n. *rě-spōns'* [OF. *response*, a response—from L. *responsum*, an answer or reply—from *re*, back; *spondēō*, I promise solemnly: It. *risponso*: F. *réponse*]: a reply or answer; an oracular answer; the answer of the people in certain parts of Divine service; rejoinder. **RESPONSIBLE**, a. *rě-spōň'sī-bl'*, answerable; accountable; amenable. **RESPON'SIBLY**, ad. *-blī*. **RESPON'SIBLENESS**, n. *-bl-něs*. **RESPON'SIBIL'ITY**, n. *-bīl'ī-tī*, state of being accountable or answerable. **RESPON'SIVE**, a. *-sīv*, making answer; correspondent. **RESPON'SIVELY**, ad. *-lī*. **RESPON'SIVENESS**, n. *-něs*, the state of being responsive. **RESPON'SIONS**, n. plu. *-shūnz*, the first examination which students at Oxford undergo before they can take any degree—familiarly called 'Smalls.' **RESPON'SORY**, a. *-sēr-ī*, containing or making answer: N. [L. *responsorium*, a response] short sentence, generally a verse or portion of verse from Scripture, assigned in church services, to be uttered by the people responsively to the priest. Responsories are appended to lessons, to chapters, and to verses, in connection with which they are either chanted or simply repeated, according to the nature of the service. They are found in all ancient liturgies and in the Book of Common Prayer: in the latter the name is **RESPONSE**.

RESSAIDAR, n. *rěs'ā-dār'*, or **RESSALDAR**, *rěs'āl-dār* [Hind.—from Ar. *reis*, a chief]: a native officer in a native cavalry regiment of India, in command of a squadron. **RESSALAH**, n. *rěs'ā-lū'*, a squadron of Indian native cavalry.

REST.

REST, n. *rĕst* [AS. *rest* or *rast*, repose: Dan. and Sw. *rast*; Ger. *rast*; OHG. *rasta*; Dat. *rust*, ease, quiet]—a state free from motion or disturbance; quiet; repose: sleep; final sleep; death; cessation from mental or physical labor; place of repose; the grave; that on which a thing leans for support; trust; peace: in *music*, a pause in sound, or the mark to indicate it (see below): in *her.*, a charge, called sometimes organ-rest: V. to lay or place at rest; to cease from action or motion of any kind; to be tranquil; to be at peace; to recline; to be in a state of repose or slumber; to sleep the final sleep; to lean on; to trust or rely. **REST'ING**, imp. **REST'ED**, pp. **REST'FUL**, a. in *OE.*, quiet; being at rest. **REST'LESS**, a. -*lē*s, not still; unquiet; disturbed; sleepless; unsettled; roving. **REST'LESSLY**, ad. -*lī*. **REST'LESSNESS**, n. -*nēs*, the quality or state of being restless; uneasiness; want of sleep. **REST-HOUSE**, in *East Indies*, an empty house for the accommodation of travellers. **REST-HARROW**, a common leguminous weed with strong fibrous roots; *Onōnis arven'sis*. **RESTING-PLACE**, a place to rest at. **TO REST WITH**, to be in the power of; to depend upon.—**SYN.** of 'rest, n.': sleep; repose; peacefulness; stillness; cessation; quiet; tranquillity; peace; support; interval; pause; intermission; stop; stay; slumber; ease; quietness;—of 'rest, v.': to sleep; slumber; die; cease; be still; acquiesce; lean; recline;—of 'restless': unquiet; disquieted; unsettled; roving; wandering; uneasy; disturbed; sleepless; agitated; anxious.

REST, n. *rĕst* [F. *rester*, to remain; *reste*, a remainder—from L. *restārē*, to remain—from *re*, back; *stārē*, to stand: It. *restare*, to leave an overplus]: that which remains, or may remain, after the separation of a part; remnant; remainder; overplus; residue; others; a surplus fund held in reserve by a bank or a public company in order to equalize the dividends, should the profits made in any one year fall below the amount required for paying the usual dividend to the shareholders: V. in *OE.*, to be left; to remain. **RESTING OWING** [F. *en reste*, in arrear]: in *Scots law*, remaining due; indebted.

REST—REST-HARROW.

REST, in Music: interval of silence in the course of a movement between one sound and another; its duration, like that of a note, is indicated by the form of the character representing it.

Semibreve. Minim. Crotchet. Quaver. Semiquaver. Demi-semi-quaver.



Semi-demi-semiquaver. Two Semibreves. Four Semibreves. Six Semibreves. Eight Semibreves



For rests of still longer duration, it is now usual to draw one or two oblique lines across the staff, and write on them in figures the number of measures during which the voice or instrument is to be silent.

13

Thus, , in common time, denotes a rest of 13

semibreves. A rest, like a note, may be prolonged by one or more dots.

RESTANT, a. *rēs'tānt* [L. *restans* or *restan'tem*, remaining—from *restārē*, to remain: F. *restant*]: in *bot.*, remaining, as foot-stalks after the fructification has fallen off.

RESTATE, v. *rē-stāt'* [*re*, again, and *state*]: to state anew.

RESTAURANT, n. *rēs'tō-rāng* [F. *restaurant*—from *restaurer*, to restore, to re-establish—from L. *restaurārē*, to restore]: an eating-house; a place for the sale of refreshments. **RESTAURATEUR**, n. *rēs-tō'rā-tēr'*, an eating-house keeper; one who keeps a place for the sale of refreshments.

RESTEM, v. *rē-stēm'* [*re*, back, and *stem*]: to force back against the current.

REST'-HARROW (*Ononis*): genus of plants of nat. order *Leguminosæ*, sub-order *Papilionaceæ*; having a 5-cleft bell-shaped calyx, the standard of the corolla large and striated, the keel beaked, the pod turgid and few-seeded. There are many species, natives chiefly of Europe, and generally herbaceous or half-shrubby.—The Common R.-H. (*O. arvensis*) is abundant in pastures and by waysides in Britain. Its lower leaves have three leaflets, the upper are simple; the flowers are axillary and rose-colored, or occasionally white. The plant is half-shrubby, with somewhat spiny stems; viscid; and its smell strong and unpleasant. The roots are tough and woody, whence its name. It is sometimes a troublesome weed, but only in neglected pastures, and disappears before careful cultivation.

RESTIACEÆ—RESTIVE.

RESTIACEÆ, *rĕs-tĭ-ā'sē-ē*: natural order of endogenous plants, nearly allied to *Cyperaceæ*, natives mostly of the s. hemisphere, and abounding at the Cape of Good Hope and in Australia. They are herbaceous, or sometimes half-shrubby; have simple stems and narrow leaves; and are hard, wiry, and rush-like. They have generally a creeping root-stock. The flowers are in heads or spikes, generally unisexual, with 2-6 glumes, sometimes with none; two or three stamens, an ovary with 1-3 cells, one ovule in each cell, the fruit a capsule or nut. *Restio tectorum* is much used for thatching houses at the Cape of Good Hope. *Wildenowia teres* is used for making baskets and brooms.

RESTIFF, a. *rĕs'tĭf* [OF. *restif*; F. *rétif*, restive]: an OE. spelling of **RESTIVE**. **RESTIFFNESS**, n. *-nĕs*, for **RESTIVENESS**. See **RESTIVE**.

RESTIFORM, a. *rĕs'tĭ-fawrm* [L. *restis*, a cord; *forma*, shape]: like a cord; rope-shaped.

RESTIGOUCHE, *rĕs-tĭ-gôsh'*: one of the n. counties of New Brunswick, adjoining the Bay of Chaleurs and Quebec; area nearly 3,000 sq. m. The R. river passes through it and forms a portion of the boundary between New Brunswick and Quebec. The river is about 200 m. in length and for about 24 m. from its mouth is a tidal estuary, navigable for the largest ships 18 m. The main river, formed of five head streams, flows through a mountainous region with many fertile valleys. The fishing interest is of considerable importance, and attracts sportsmen from a distance. Large quantities of lumber are exported.

RESTIPULATE, v. *rĕ-stĭp'ū-lāt* [*re*, again, and *stipulate*]: to stipulate anew. **RE'STIPULA'TION**, n. a new or second stipulation.

RESTITUTION, n. *rĕs'tĭ-tū'shŭn* [F. *restitution*; Sp. *res-titucion*, restitution—from L. *restitūtĭō*, a restoration—from *re*, back; *statūō*, I put or place; *sto*, I stand]: act of making good any loss, damage, or injury; the restoration of something lost or taken away; amends; reparation: in *Scotch law*, obligation of the purchaser of a movable, which really belongs to a third party, to deliver it up to such real owner without claiming repayment of price (see **REPETITION**).—**SYN.**: restoration; reparation; indemnification; return; compensation; amends.

RESTIVE, a. *rĕs'tĭv* [OF. *restif*, restive, stubborn: F. *rétif*—from L. *restārĕ*, to stand still, to withstand: It. *restio*]: restless and unwilling to stir, or only moving backward, as a horse; obstinate in refusing to move forward; impatient under restraint or opposition; stubborn; recalcitrant; uneasy; in *OE.*, being at rest; being less in motion. **RE'STIVELY**, ad. *-lĭ*. **RE'STIVENESS**, n. *-nĕs*, obstinacy or unwillingness to move forward; obstinate unwillingness or impatience. **RETTY**, a. *rĕs'tĭ*, restive; in *OE.* spelled **RESTIFF**.

RESTORATION—RESTORE.

RESTORATION, THE, in English History: resumption of monarchical govt., on the accession of Charles II., 1660, May 29, after an interval of 11 years, from 1649, Jan. 30, when Charles I. was beheaded, during which the govt. of Great Britain was republican. The R. was appointed by various statutes to be observed as a festival in the Church of England, with special religious services; but its observance was abolished 1859.

RESTORATIONIST: believer in only a temporary future punishment—an old doctrine under a new name. It has found advocates at all times since the days of Origen (q.v.). One of the most remarkable doctrines of that Father was his belief of a general *apokatastasis*, or 'restoration' of all things, in which, after a purgation proportioned to the various moral conditions of their souls at the time of death, all men, however wicked, and all the evil angels, even Lucifer himself, would be restored to holiness and to the favor of God, and reunited to Him in heaven. This doctrine was condemned at the time, and has since been repeatedly rejected by the churches of the East as well as of the West. Restorationism has been renewed in more than one form since the Reformation by various classes, who have taken the name Universalists (q.v.). The particular title of Restorationists was given in America to the followers of Hosea Ballou (q.v.), who, in addition to the tenet above explained, preached that all retribution is confined to this life; and who, though he denied the immortality of the soul, yet taught that at the resurrection all men will be admitted to everlasting happiness.

RESTORE, v. *rě-stōr'* [F. *restaurer*, to restore—from L. *restaurārē*, to make to stand again, to restore: It. *restaurare*]: to replace; to give or bring back that which has been lost or unjustly taken away; to bring back to its former state; to rebuild; to renew: N. in *OE.*, restoration. **RESTOR'ING**, imp. **RESTORED**, pp. *rě-stōrd'*. **RESTOR'ABLE**, a. *-ă-bl*, capable of being brought to a former condition. **RESTOR'ABLENESS**, n. *-nēs*, the quality or state of being restorable. **RESTORATION**, n. *rěs'tō-ră-shŭn*, the act of restoring or replacing; renewal; recovery; restitution; reparation (see **RESTORATION, THE**). **RES'TORA'TIONIST**, n. *-shŭn-ĭst* (see above). **RESTORATIVE**, a. *rě-stōr'ă-tĭv*, having power to restore or renew, as health and vigor: N. a medicine efficacious in recruiting the vital powers. **RESTOR'ATIVELY**, ad. *-lĭ*. **RESTOR'ER**, n. *-ēr*, one who restores.—**SYN.** of 'restore': to recover; replace; renew; renovate; reinstate; re-establish; return; revive; recover; refund; repay; repair; heal; cure.

RESTRAIN—RESUME.

RESTRAIN, v. *rě-strān'* [OF. *restraindre*; F. *restreindre*, to restrict—from L. *restringĕrĕ*, to check, to restrain—from *re*, back; *stringo*, I draw tight: It. *restringere*]: to hold back; to bind fast; to curb; to repress; to limit; to abridge. **RESTRAIN'ING**, imp. **RESTRAINED**, pp. *rě-strānd'*. **RESTRAIN'ER**, n. *-ĕr*, one who restrains. **RESTRAIN'ABLE**, a. *-ā-bl*, capable of being restrained. **RESTRAIN'MENT**, n. *-mĕnt*, the act of restraining. **RESTRAIN'EDLY**, ad. *-ĕd-lĭ*. **RESTRAINT'**, n. *-strānt'*, the act of restraining; abridgment of liberty; restriction; hindrance of will; repression; that which restrains.—**SYN.** of 'restrain': to withhold; keep in; repress; suppress; hinder; abridge; hold in; limit; confine; check; stop; curb; coerce; restrict;—of 'restraint': abridgment; prohibition; limitation; restriction; repression; hindrance; check; stop; curb; coercion; confinement.

RESTRENGTHEN, v. *rě-strĕngth'n* [*re*, again, and *strengthen*]: to strengthen anew.

RESTRICT, v. *rě-strĭkt'* [L. *restrictus*, confined, restricted—from *re*, back; *stringĕrĕ*, to draw tight (see **RESTRAIN**)]: to keep back within certain limits; to circumscribe; to limit. **RESTRICT'ING**, imp. **RESTRICT'ED**, pp. limited; confined to bounds. **RESTRICTION**, n. *rě-strĭk'shŭn* [F.—L.]: limitation; restraint; that which restricts. **RESTRICT'IVE**, a. *-iv*, having the quality of limiting, or expressing limitation; imposing restraint. **RESTRICT'IVELY**, ad. *-lĭ*.—**SYN.** of 'restrict': to restrain; curb; confine; coerce; limit; bound; circumscribe; repress.

RESTY: see under **RESTIVE**.

RESUBJECT, v. *rě'sŭb-jĕkt'* [*re*, again, and *subject*]: to subject a second time. **RE'SUBJEC'TION**, n. a second subjection.

RESUBLIME, v. *rě'sŭb-lĭm'* [*re*, again, and *sublime*]: to sublime again. **RESUB'LIMA'TION**, n. a second sublimation.

RESULT, v. *rě-zŭlt'* [F. *résulter*, to result—from L. *resultāre*, to spring back—from *re*, back; *salĭō*, I leap: It. *resultare*]: to follow or have origin, as a consequence, from facts, arguments, thought, etc.; to spring; to arise; to originate; to issue; to ensue: N. that which proceeds from a given state of facts, etc.; consequence; inference; decision; issue. **RESULT'ING**, imp. **RESULT'ED**, pp. **RESULT'ANT**, n. *-ānt*, in *dyn.*, a force which results from the composition or putting together of two or more forces acting on the same point: **ADJ.** that arises from combination. **RESULT'LESS**, a. *-lĕs*, without result.—**SYN.** of 'result, n.': consequence; effect; issue; event; conclusion; inference;—of 'result, v.': to spring; proceed; arise; ensue; terminate.

RÉSUMÉ, n. *rā-zô'mā* [F. *résumé*, a summary; *résumer*, to sum up (see **RESUME**)]: a summing up; a condensed statement; a summary; a recapitulation.

RESUME—RESURRECTION.

RESUME, v. *rě-zūm'* [L. *resumĕrĕ*, to take back, to resume—from *re*, again; *sumo*, I take: Sp. *resumir*; F. *résumer*]: to take back that which has been given or taken away; to proceed or take up again after interruption; to begin again; to take again. **RESUM'ING**, imp. **RESUMED'**, pp. *-zūmd'*. **RESUM'ABLE**, a. *-ă-bl*, that may be taken back or up again. **RESUMP'TION**, n. *-zūmp'shūn* [L. *resumptus*, resumed]: the act of taking back or taking again. **RESUMP'TIVE**, a. *-tīv*, taking back or again.

RESUMMON, v. *rě-sūm'mōn* [*re*, again, and *summon*]: to summon or call again.

RESUMPTION: see under **RESUME**.

RESUPINATE, a. *rě-sū'pī-nāt* [L. *resupīnātus*, bent or turned back—from *re*, back or again; *supīno*, I bend backward; *supīnus*, lying on the back]: in *bot.*, so turned or twisted that the parts naturally the undermost become the uppermost, and *vice versa*. **RESUPINE**, a. *rěs'ū-pīn'*, lying on the back.

RESUPPLY, v. *rě'sūp-plī'* [*re*, again, and *supply*]: to supply again.

RESURGENT, a. *rě-sĕr'jĕnt* [L. *resur'gens* or *resurgen'tem*, rising or appearing again—from *re*, again, *surgĕrĕ*, to rise]: rising again, as from the dead, swelling up.

RESURRECTION, n. *rěz'ĕr-rĕk'shūn* [F. *résurrection*—from L. *resurrectiōnem*, resurrection—from *resurrectus*, risen again—from *re*, again; *surgĕrĕ*, to rise: It. *resurrezione*]: a rising again from the dead; the rising of the dead from the grave at the general judgment (see **RESURRECTION, THE**): a moral revival, as from a state of ignorance or degradation. **RES'URREC'TIONIST**, n. *-ĭst*, a despoiler of graves for purposes of dissection.

RESURREC'TION, THE: the rising from the dead of the human body in the future life. We find dim hints of this doctrine in different religions, especially in later Judaism, but the doctrine is peculiarly Christian. In the earlier Hebrew Scriptures, the Pentateuch, the Psalms, the earlier prophecies, there is no distinct reference to it. It is supposed to be alluded to in Is. xxvi. 19, and in Ezek. xxxvii., in the well-known chapter as to the revival of dry bones in the valley of vision; and in Daniel xii. 2, there is the distinct affirmation that 'many that sleep in the dust of the earth shall awake, some to everlasting life, and some to shame and everlasting contempt.' There is also a well-known passage in Job (xix. 25-27) which has been usually considered to refer to the R. of the body. A large school of recent criticism denies the validity of this reference; but this denial has called forth stronger argument in defense of the reference. In the later Judaism the tenet of the R. appears, and in the time of Christ it had become a formal doctrine of the Pharisees. The general body of the Jewish people also seem to have believed it. The Sadducees alone disputed it (Matt. xxii. 23, sq.; Luke xx. 27, sq.; Acts xxiii. 6-8). It appears, in fact, to have become bound

RESURVEY.

ap in the Jewish mind with the idea of a future life, so that an argument which proved the one proved the other; and the Sadducees not merely denied the distinctive idea of the R., but further denied the existence of any 'angel or spirit.'

It remained for Christ and his apostles to reveal clearly the R. of *man*—soul and body—and to connect it with the fact of Christ's own R. as its special evidence and pledge. The following may be stated as the main points involved in the doctrine as it appears in the New Test. : 1. The R. is ascribed to Christ himself; it will complete his work of redemption for the human race (John v. 21; I Cor. xv. 22, sq.; I Thess. iv. 14; Rev. i. 18). 2. All the dead will be raised indiscriminately to receive judgment according to their works, 'they that have done good, unto the resurrection of life; and they that have done evil, unto the resurrection of condemnation' (John v. 21-29; I Cor. xv. 22; Rev. xx. 11). 3. The R. will be at 'the last day,' by which seems to be meant the close of the present world (John vi. 39, 40; xi. 24; I Thess. iv. 15). 4. The great event is represented as ushered in by the sound of a trumpet—i.e., by a mighty *call* heard by the whole race of man—a representation used probably in view of the Jewish practice of convening great assemblies by sound of trumpet (I Cor. xv. 52; I Thess. iv. 16). 5. As to the character of the change through which men's bodies are raised after the lapse of ages, with their identity preserved, nothing is distinctly made known; the fact is abundantly and most positively declared, but the mode—like other points of curious philosophical inquiry concerning revealed facts—is not in any way even remotely indicated. The impossibility of such a change was evidently a subject of argument in the primitive Christian age, and the apostle Paul argues in its favor with majestic force (I Cor. xv. 32, sq.) from common occurrences scarcely less mysterious in the natural world. It is not professed, however, that such occurrences explain the R. : the apostle designs rather to silence cavils, and to invigorate faith by freeing the doctrine from prejudices which ignorance tended to attach to it. Arguing from God's infinite power as displayed in the processes of creation, he would, as it were, press the question which he asks elsewhere: 'Why should it be thought a thing incredible with you that God should raise the dead?' (Acts xxvi. 8), rather than attempt any explanation, of which the subject does not really admit in the present limited capacity of the human mind. And this is the spirit in which this sublime fact of the R. of man—body and soul—is to be contemplated. Its *mode*—involving the *nature of matter*, which is not yet ascertained by any science, but only conjectured in opposing theories, involving also the still unknown relations of matter and spirit—necessarily transcends our present intelligence.

RESURVEY, v. *rě'sér-vā'* [*re*, again, and *survey*]: to survey a second time.

RESUSCITATE—RETAINER.

RESUSCITATE, v. *rě-sūs'si-tāt* [L. *resuscitātus*, roused again, revived—from *re*, again; *suscitārě*, to raise—from *sub*, under; *citārě*, to rouse: It. *risuscitare*: F. *ressusciter*]: to recover from apparent death; to revivify; to revive; to come to life again. **RESUS'CITATING**, imp. **RESUS'CITATED**, pp. **RESUS'CITATOR**, n. *-tér*, one who resuscitates. **RESUS'CITABLE**, a. *-tā-bl*, that may be recovered from apparent death. **RESUS'CITA'TION**, n. *-tā'shūn*, the act of reviving from a state of apparent death. **RESUS'CITATIVE**, a. *-tā-tiv*, revivifying.

RET, v. *rět* [Ger. *rösten*, to steep: Dut. *rotten*, to rot, to putrefy: a modification of *rot*, Sw. *rota*, to rot or putrefy]: to destroy by rotting. **TO RET FLAX**, to steep it in water in order to separate the fibre by incipient rotting. **RET'ING**, imp. **RET'TED**, pp. **RET'TERY**, n. *-tér-ī*, a place or factory for preparing flax.

RETAIL, v. *rě-tāl'* [F. *retaille*, a shred or small piece cut from a thing—from *re*, again; *tailler*, to cut; *taille*, a slitting—from L. *tālěā*, a thin rod, a cutting]: to sell in small quantities; to sell at second-hand; to relate in broken parts, as a story: N. *rě'tāl*, the sale of goods in small quantities; opposite of *wholesale*. **RETAIL'ING**, imp. **RETAILED'**, pp. *-tāld'*. **RETAIL'ER**, n. *-ér*, one who retails; one who sells in small quantities. **RETAIL'MENT**, n. *-měnt*, the act of retailing.

RETAIN, v. *rě-tān'* [F. *retenir*—from L. *retinērě*, to keep back, to restrain—from *re*, back; *teněō*, I hold: It. *ritenere*]: to hold or keep in possession; to keep; to keep back; to hold from escape; not to lose or lay aside; to keep in pay; to engage by a fee paid. **RE-TAIN'ING**, imp. **RETAINED'**, pp. *-tānd'*. **RETAIN'ER**, n. *-ér*, an attendant; a servant; a hanger-on: in *law* (see below). **RETAIN'ABLE**, a. *-ā-bl*, capable of being retained.—**SYN.** of 'retain': to hold; restrain; keep; detain; preserve; hire; withhold; continue.

RETAIN'ER, in Law: act of engaging an attorney or counsel to attend to a certain suit or case. The R. is generally a precautionary measure resorted to only in the case of eminent counsel, the effect being to prevent the other party from securing the services of such counsel; and this is considered a prudent precaution in most cases of importance. The retaining fee, often large, is also sometimes called a *retainer*.

RETAINING WALL.

RETAINING WALL: wall built to retain earth, sand, or other incoherent substances in positions and forms which otherwise they could not maintain. These substances, if left to themselves, will not stand with vertical sides, but will fall down till they assume a certain slope. The angle which this slope makes with the horizontal is called the 'angle of repose.' This angle varies according to the nature of the material; e.g., that of moist soil is about 45° , while fine sand assumes an angle of about 30° .

In fig. 1, E represents a section of a mass of earth,



Fig. 1.

which it is desired to retain by means of the wall ABCD. If we draw BG from B at the angle of repose, it is evident, from what has been said, that the prism ABG is kept in position by the retaining wall; and if the earth began to give way, it would do so by slipping on some line BF. The wedge-shaped piece ABF, which has the greatest tendency to separate itself from the rest of the mass, is called the 'prism of greatest pressure;' and the retaining wall ABCD must be made of sufficient weight and thickness to prop it up and resist its tendency to slide. The line BF is found to bisect the angle ABG. In estimating the requisite thickness of the wall, it must be taken into account that the wall may give way in various manners; it may be overturned, or it may slide as a whole along its base DB, or the upper parts may give way, while the base remains. From these data, mathematical formulæ have been worked out, which determine the thickness requisite for different situations and materials, such as that given by Poncelet for ordinary materials and within ordinary limits:

$$x = .285(H + h).$$

Where H, the height of the wall, and h, the additional height of the bank above the top of the wall, being given, x, the thickness of the wall, can be found.

These formulæ, however, are of little practical value, on account of the varying nature of the data on which they are founded, and of the excess of strength requisite in all such constructions, to allow for causes of failure, which cannot be foreseen or provided for in the calcu-

RETAINING WALL.

lations. Practical experience is found to be the only safe guide in all such considerations.

Figs. 2, 3, and 4 represent sections of forms of retaining walls in common use. Figs. 2 and 3 are used in retaining earthworks, while fig. 4 is a common form of dock-wall.

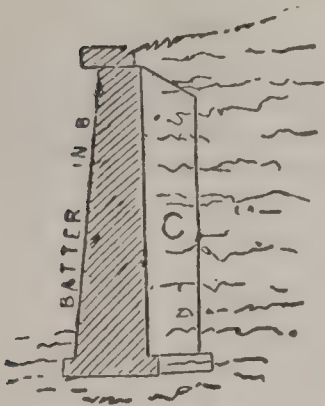


Fig. 2.

In that shown by fig. 2, the thickness at the top is 2 to 3 ft.; the back is vertical, and the front is sloped out 1 ft. for every 8 ft. in height; so that the thickness increases with the height, in the same manner as the pressure of the earth, which it is required to resist. The foundation is of large stones, extending beyond the sides of the wall, so as to distribute the pressure on as large a surface as possible. It is also sunk 2 or 3 ft. below the adjoining surface, to resist its tendency to slip on its base. At its back are placed counterforts, C, which are built up with the wall, and are about 3 ft. long by $2\frac{1}{2}$ ft. wide, 8 to 10 ft. apart. These counterforts stiffen the wall like ribs; they put its centre of gravity further back, and so resist the

tendency to heeling or overturning; they also act advantageously in dividing the earth, and so diminishing the length of the mass, which can act together against the wall. This form is very simple in construction.

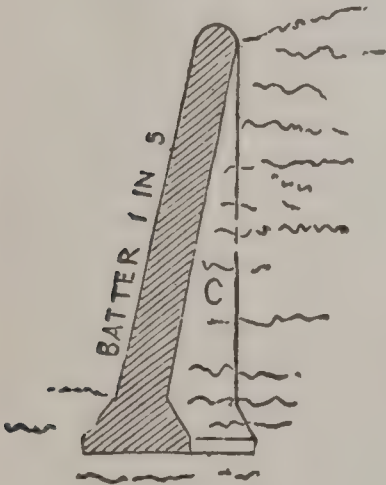


Fig. 3.

The form of wall in fig. 3 is that which requires least material; it also, on account of its thinness, dries and consolidates rapidly, but is not so easily built as that shown in fig. 2.

The dock-wall in fig. 4 is made much heavier than the simple pressure of the earth behind it would require; for it has many strains to bear of exceptional character due to its situation; such are the machinery and goods deposited on the quays, and the possible accident of the dock being suddenly emptied of water, while the earth behind the wall is full of water.

In the construction of a retaining wall, a great desideratum is, that the earth behind it be well drained; for if water be allowed to accumulate behind the wall, the earth becomes semi-fluid, in which state it gives a very much increased pressure. For this purpose, holes are left through the wall called 'weeping-holes;' these holes are about 9 inches high and 2 inches wide, and are generally placed about 1 for every 36 sq. ft. of wall. Also

RETAKE—RETCH.

stones without mortar are frequently built up behind the wall, so forming an open stratum, into which the

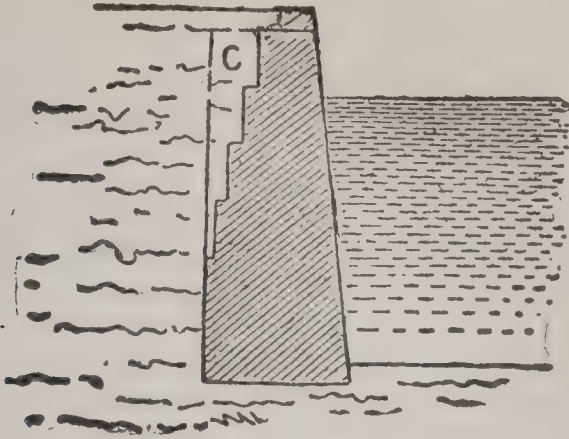


Fig. 4.

water drains, and is thence carried off through the weeping-holes.

RETAKE, v. *rě-tāk'* [*re*, again, and *take*]: to take again; to recapture.

RETALIATE, v. *rě-tāl'i-āt* [mid. L. *retaliātus*, retaliated—from L. *re*, back; *tālō*, retaliation—from *tālis*, such, like: F. *talion*, a pain or requital equal to the harm done, tit for tat]: to return by giving like for like, in an ill sense; to requite or pay back with the like. **RETALIATING**, imp. **RETALIATED**, pp. **RETALIA'TION**, n. *-ā'shūn*, the return of like for like; retribution. **RETALIA'TIVE**, a. *-ā-tīv*, or **RETALIATORY**, a. *-ā-tēr-ī*, returning like for like.—**SYN.** of 'retaliation': reprisal; retribution; requital, repayment; punishment; revenge.

RETARD, v. *rě-târd'* [F. *retarder*, to delay; *retard*, delay—from L. *retardārē*, to impede, to retard—from *re*, back or again; *tardārē*, to make slow—from *tardus*, slow: It. *ritardare*]: to impede; to hinder; to render slower: N. in *OE.*, retardation; delay. **RETARD'ING**, imp. **RETARD'ED**, pp. **RETARD'ER**, n. *-ér*, he or that which retards. **RETARD'MENT**, n. *-mēnt*, or **RETARDATION**, n. *rě-târ-dā'shūn* [F.—L.]: the act of lessening the velocity of motion; hindrance. **RETARD OF THE TIDE**, the interval between the transit of the moon at which a tide originates and the appearance of the tide itself. **RETARDATION OF MEAN SOLAR TIME**, the change of the mean sun's right ascension in a sidereal day, by which he appears to hang back, as it were, in his diurnal revolution.—**SYN.** of 'retard, v.': to hinder; obstruct; procrastinate: defer; impede; detain; delay.

RETCH, v. *rěch* [AS. *hræcan*; Icel. *hrækja*, to retch: Norw. *rækja*, to hawk, to spit: Dut. *rachelen*, to cough: It. *recere*, to vomit: Gael. *ruchd*, to grunt, to belch]: to make an effort to vomit; to strain; to heave at the stomach. **RETCH'ING**, imp. **RETCHED**, pp. *rěcht*.

RETE, n. *rě'tě* [L., *rětě*, a net, a snare]: a net; network. RETECIOUS, a. *rě-tě'shūs*, resembling network. RETICLE, n. *rět'ī-kl*, a small net. RETE MIRAB'ILE, *mĭr-ăb'ī-lě* [L., a wonderful net]: in *anat.*, a complicated anastomosis of blood-vessels. RETE MUCOSUM, *mū-kō-zūm* [L., a mucous net]: in *anat.*, the soft underlayer of the epidermis or scarfskin, which gives the color to the skin.

RETELL, v. *rě-těl'* [*re*, aga'n, and *tell*]: to tell again.

RETENE, n. *rět'ēn*: a resinous body of the anthracene series, polymeric with benzene.

RETENTION, n. *rě-těn'shūn* [F. *réten*—from L. *re-tentiōnem*, a holding back—from *re*, back; *tenēō*, I hold: It. *ritenzione*]: act or power of retaining, as in the memory; the memory: undue withholding of some natural discharge; restraint; reserve. RETENTIS, n. *rě-těnt'is*, things retained. RETEN'TIVE, a. *-tĭv*, having power to retain, as in the memory. RETEN'TIVELY, ad. *-lĭ*. RETEN'TIVENESS, n. *-nēs*, the quality of being retentive. TO BE KEPT IN RETENTIS, to be kept among things retained or reserved for some future purpose.

RETENTION OF U'RINE: lack of power to discharge the urine from the bladder: it must be distinguished from a far more serious affection known as *suppression of urine*, in which also no urine is passed because in this case there is none in the bladder. R. may arise either from change of structure of the parts concerned in the expulsion of the urine, or from mere disordered function unaccompanied by change: the former causes are termed *organic*, the latter *functional*.

Among chief organic causes are: 1. Permanent stricture of the Urethra (q.v.). 2. Contraction of the Urethra, in consequence of a blow on the perinæum, or other external injury. 3. Tumors within the urethra. 4. Foreign bodies in the urethra, as calculi, clots of blood, or mucus, etc., which have entered it from the bladder, or fragments of bougies, etc., introduced from without. 5. Enlargement of the prostate gland, especially in aged men. The treatment in R. from these causes must be left in the hands of the surgeon.

The principal functional causes are: 1. Spasm of the urethra, often termed spasmodic stricture. 2. Lack of power in the muscular coat of the bladder and urethra. Spasm of the urethra is most likely to occur in those who have a slight permanent stricture, or a urethra irritable from other causes. The spasm usually follows exposure to cold and wet, but it may be excited by piles or other sources of irritation in the lower bowel, or by the use of cantharides either taken internally as a medicine, or absorbed from blisters applied to the skin. The patient finds himself unable to pass his water, though he has a great desire and makes strong efforts to do so. The bladder soon becomes so distended that it can be felt as a tense round tumor above the pubes. If relief be not speedily afforded, the bladder may burst.

RETENTION OF URINE.

and discharge its contents into the peritoneal cavity, in which case death rapidly ensues; or the urethra behind the stricture gives way, and the urine is extravasated into the cellular tissue of the adjacent parts—a condition which, if not promptly relieved by surgical interference, is likely to be followed by gangrene, typhoid symptoms, and death. If the symptoms are not very severe, and there is no evidence of old permanent stricture, a hot bath, combined with administration of the tincture of muriate of iron, in doses of ten minims, taken every ten minutes in thin gruel or in barley-water, will often give relief. Sometimes a full opiate administered by the mouth, or preferably as an enema, or the inhalation of a few whiffs of chloroform, will, by allaying the spasmodic action, give immediate relief. If these means fail, surgical assistance must be at once procured, and the bladder evacuated by a catheter—an operation often requiring very delicate manipulation. If these means fail, which happens only when the spasm is associated with old-standing disease of the urethra, the surgeon must either puncture the bladder through the rectum, or above the pubes, or make an incision into the urethra either at or behind the seat of the stricture.

Paralysis of the muscular coat of the bladder may arise from the debility of old age, from the depressed state of the nervous system in fevers of the typhoid type, from injury or disease of the head or spine, and from various other causes. In temporary form, it is often a result of overdistention of the bladder from stricture or prostatic disease, and it sometimes occurs in the case of nervous sedentary persons, if they have allowed rather more than the usual time to elapse without evacuating the bladder. It should be generally known that R. from paralysis is sometimes accompanied with dribbling away of the water, so that the retention might at first sight be mistaken for *incontinence* of urine. On examination, however, it will be found that the bladder is abnormally distended, and cannot be evacuated by the act and will of the patient. In these cases, the urine must for a time be regularly drawn away by the catheter. General tonics, such as the cold bath (sometimes preferably the sitz-bath) and chalybeates, must be given to improve the general health; while medicines supposed to act locally on the mucous coat of the bladder, or on the spinal cord, must be simultaneously administered.—A peculiar form of retention sometimes occurs in women of hysterical temperament, in which the will rather than the power is at fault: the treatment should be directed toward the general hysterical tendency, rather than to this special manifestation of it.

RETEPORA—RETICULE.

RETEPORA, n. plu. *rě'tě-pō-ră* [L. *rětě*, a net; *pōrus*, a pore]: genus of Bryozoa which have their cell-pores arranged in net-like order. **RETEPORE**, n. *rě'tě-pōr*, one of the Retepora.

RETFORD, *rě'tfěrd*, EAST: small municipal borough and market-town, county of Notts, England, on the right bank of the Idle, affluent of the Trent, 138 m. n.n.w. of London by the Great Northern railway. West R., on the other side of the river, and connected



Retepora cellulosa.

with East R. by a strong bridge of five arches, is a more modern and much smaller town.—Tanning, coach-making, and paper-making are carried on, and there are several iron-foundries. Pop. of municipal borough (1881) 9,748; (1891) 10,603.

RETHEL, *rěh-těł*: town of France, dept. of Ardennes, prettily situated on the right bank of the Aisne. Woolen and other manufactures are carried on. Pop. 8,000.

RETIARIUS, n. *rě-ti-ă'ri-ŭs* [L.—from *rětě*, a net]: in *Rom. antiq.*, a gladiator who wore only a short tunic and carried a trident and net: with these, he endeavored to entangle and dispatch his adversary, who was armed with a helmet, a shield, and a sword.

RETIARY, n. *rě'shĭ-ér'ĭ* [L. *rětĭārĭŭs*, one who fights by using a net, a kind of gladiator—from *rětě*, a net]: one of the class of spiders which spin webs to catch their prey: **ADJ.** net-like. **RETIARIÆ**, n. plu. *rě'shĭ-ă'ri-ě*, the systematic name for the class.

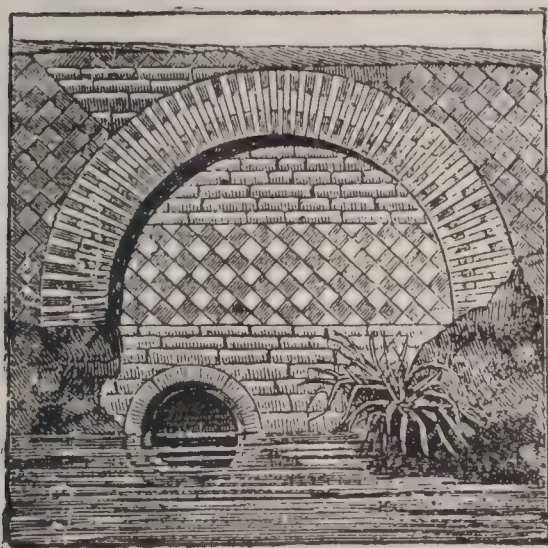
RETICENCE, n. *rět'ĭ-sěns*, or **RET'ICENCY**, n. -sĭ [F. *réticence*—from L. *retĭcentĭă*—from *reticens* or *reticen'tem*, keeping silence—from *re*, back or again; *tacēō*, I am silent: It. *reticenza*, concealment]: concealment by silence. **RET'ICENT**, a. -sěnt, silent; reserved; taciturn.

RETICULARIA, n. *rě-tĭk-ŭ-lă'ri-a*: name proposed by Dr. Carpenter, 1862, and now generally adopted to designate those Protozoa, such as the *Foraminifera*, in which the pseudopodia run into one another and form a network.

RETICULE, n. *rět'ĭ-kŭl* [F. *réticule*, a reticule—from L. *retic'ŭlum*, a small net—from *rětě*, a net]: a lady's work-bag; a small bag for carrying in the hand; in a *telescope*, a network of fine spiders' threads, or of wires crossing each other at right angles, and dividing the field of view into a series of small equal squares. **RETICULAR**, a. *rě-tĭk'ŭ-lěr*, having the form of a small net; having interstices like network. **RETIC'ULATE**, a. -lăt, resembling network; in *arch.*, formed of diamond-shaped stones, or square stones laid diagonally; in *zool.* or *bot.*, having distinct veins or lines crossing like network: **V.** to form into a structure of veins or lines crossing each other as in network, **RETIC'ULATING**, imp. running into meshes, **RE-**

RETIFORM—RETINERVIS.

RETICULATED, a. *-lā-těd*. **RETIC'ULA'TION**, n. *-lā-shŭn*, any organization resembling network; that which is reticulated. **RETIC'ULUM**, n. *-lŭm*, the second or honey-combed cavity in the compound stomach of ruminant animals; in *anat.*, an extremely delicate network of tissue supporting the proper nervous substance in the brain and the spinal cord; in *bot.*, the debris of crossed fibres about the base of the petioles in palms.



7 Reticulated Work (Roman).

Reticulated Moldings.

RETIFORM, a. *rět'ī-fawrm* [L. *rětě*, a net; *forma*, shape]: having the structure or form of a net.

RETIMO, *rā-tě'mō*: seaport town of the island of Crete, on its n. coast, 35 m. w. from Candia. The neighborhood is productive of oil and wine. Pop. about 6,000, of whom two-thirds are Turks, and the rest Greeks.

RETINA, n. *rět'ī-na* [L. *rětě*, a net]: one of the coats of the eye, containing the sensory nerve-endings which receive the impressions resulting in the sense of vision (see **EYE**). **RETINAL**, a. *rět'ī-nal*, of or pert. to the retina. **RET'INI'TIS**, n. *-nīt'is* [*itis*, denoting inflammation]: inflammation of the retina. **RETINOSCOPY**, n. *rět-in-ōs'kō-pī* [Eng. *retina*; Gr. *skopeō*, I see]: examination of the retina of the eye.

RETINACULUM, n. *rět'ī-nāk'ŭ-lŭm* [L. *retinac'ŭlum*, a holdfast, a band—from *retinērě*, to keep back—from *re*, back; *teněō*, I hold]: in *bot.*, the viscid disk by which the pollen-masses in orchids adhere to insect-visitors.

RETINASPHALT, n. *rět'in-ās-fālt'* [Gr. *rhētīnē*, resin; *asphaltos*, bitumen]: a mineral resin found in the coal strata; retinite.

RETINERVIS, a. *rět'ī-nér'vīs* [L. *rětě*, a net; *nervus*, a nerve]: in *bot.*, having reticulated veins.

RETINITE—RETIRED LIST.

RETINITE, n. *rět'î-nūt* [Gr. *rhētīnē*, resin or rosin]: one of the mineral resins, occurring in brown-coal and peat formations in roundish irregular lumps, of a yellowish-brown color, and slightly transparent; also called *resinite* or *retinasphalt*. **RET'INOID**, a. *-noyd* [Gr. *eidos*, form]: resin-like.

RETINUE, n. *rět'î-nū* [OF. *retenue*, a retinue: F. *retenir*, to hold land of a superior: L. *retinēō*, I retain—from *re*, back; *tenēō*, I hold]: the suite or attendants of a person of distinction, chiefly on a journey; a train of persons.

RETIRADE, n. *rět'î-râd* [F.—from *retirer*, to withdraw]: in *fort.*, a kind of retrenchment in the body of a bastion or other work to which a garrison may retreat to prolong a defense. It usually consists of two faces, which make a re-entering angle.

RETIRE, v. *rě-tīr'* [F. *retirer*, to draw back: It. *tirare*, to draw, to pull: Goth. *tairan*, to tear, in the sense of any violent action]: to depart; to withdraw; to withdraw from business or active life; to fall back, as the tide from the shore; in *mil.*, to fall back a short distance, as a body of troops in the field; to take up and pay when due, as a bill of exchange: N. in *mil.*, a bugle-sound intimating to skirmishers that they are to fall back; in *OE.*, a retreat; place of privacy. **RETIR'ING**, imp.: **ADJ.** modest; reserved. **RETIRED'**, pp. *-tīrd'*: **ADJ.** secluded from public notice; private; secret; withdrawn. **RETIRED'LY**, ad. *-tīrd'li*. **RETIRED'NESS**, n. *-nēs*, a state of retirement; solitude. **RETIREMENT**, n. *rě-tīr'měnt*, state of being withdrawn; act of withdrawing from active life or from public notice; private way of life; secluded residence; seclusion; departure. **RETIRED LIST**, a list of officers retired from the public service (see below). **RETIRING PENSION OR ALLOWANCE**, a pension or annuity granted to a person on his withdrawal from office or service.—**SYN.** of 'retire': to withdraw; depart; retreat; recede; secede; leave; retrocede;—of 'retirement': departure; retreat; seclusion; privacy; solitude; withdrawment; loneliness.

RETIRED LIST, ARMY AND NAVY: list of officers who have been retired from active service for causes prescribed by the govt. In the United States, retirement is compulsory, or voluntary, or special. In both army and navy, officers who have served 45 years continuously or have reached the age of 62 years are retired compulsorily by act of congress. In the army, an officer who has served 40 years, or 30 years continuously, or has lost a limb in the line of duty, or is incapacitated by wounds, sickness, or other cause arising from milit. service, may be retired on his own application. Special retirements are ordered by congress—viz., an officer of distinction who has resigned his commission may be restored to the active list and immediately retired, as an act of national gratitude for services rendered, or for the purpose of affording the officer an income for life. In the navy, officers are retired for in-

RETOLD—RETORT.

capacity resulting from long and faithful service, from wounds or injuries received in the line of duty, from sickness or exposure therein, or from other incident of service, on their application. All officers, in both arms of the service, receive retired pay, at the rate of 75 per cent. of the pay received at the time of retirement. In addition to this pay, retired army officers below the rank of brig.gen. (like those on the active list) receive an increase of 10 per cent. after 5 years' service, 20 per cent. after 10 years, 30 per cent. after 15 years, and 40 per cent. after 20 years; and certain naval officers retired on present rank receive the percentage of pay of the next highest rank. In establishing the grades of gen. and lieut.gen. in the army and of admiral and vice-admiral in the navy, congress provided that on retirement the incumbents should receive the full pay of the grades; and as a special compliment to John L. Worden, commander of the *Monitor* in her fight with the *Merrimac*, congress authorized his retirement on the full sea-pay of a rear-admiral. Retired officers of the army and navy are not again employed on active service in their respective branches, excepting in time of war, or under other special circumstances; but they are at liberty to hold civil offices under federal, state, and municipal govts., and draw both civil and retired pay. In 1890 there were 501 commissioned officers on the retired list of the army, and 395 (including 19 of the U. S. marine corps) on the list of the navy.—See PENSIONS AND PENSIONERS: DISCHARGE: SUPERANNUATION.

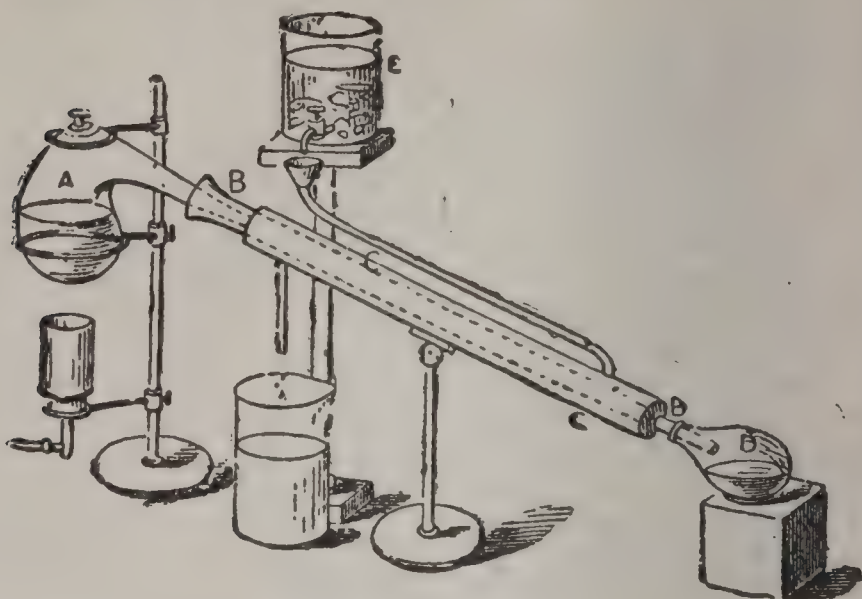
RETOLD: pp. of RETELL, which see.

RETORT, v. *rě-tört'* [L. *retortus*, twisted or bent back—from *re*, back or again; *torquēō*, I twist]: to return or throw back, as in reply to an argument, an accusation, or an incivility; to make a severe reply: in *OE.*, to throw back; to rebound: N. the return of an argument, censure, or incivility: severe reply; repartee: round-shaped chemical vessel having a long bent neck; an iron or fire-clay cylinder in a gaswork for charging with coal to be converted into gas; a distilling apparatus (see below). RETORT'ING, imp.: N. act of throwing back in the way of censure or incivility. RETORT'ED, pp. RETORT'IVE, a. -*iv*, containing retort.

RETORT': vessel used by chemists for distilling or effecting decomposition by the aid of heat: it may be of glass, earthenware, or metal, according to its purpose. Glass retorts are most common, and their ordinary form is seen in the figure. They may be employed for such products as require no extraordinary degree of cold for condensation of their vapor—e.g., for production of hydrocyanic or nitric acid. The globular vessel in which the neck of the R. is inserted is from its function termed *the receiver*. Cold may be applied to the neck of the R.—for condensing the vapor—in various ways, as by a cold wet cloth, by a current of water, or by a special apparatus known as *Liebig's Condenser*. In the accom-

RETOUCH—RETRACE.

panying figure a *Liebig Condenser* is fitted on to the retort. A is the bulb of the R., into which the matter to be distilled is inserted. It can be opened or closed at the top by a ground-glass stopper. From the bulb



Liebig's Condenser.

the neck proceeds, and its termination is seen in the receiver, D. The condenser, BB, embraces the greater part of the neck of the R.: it consists of a glass tube, tapering from end to end, fixed in the centre of a metal pipe, provided with tubes, so arranged that a current of cold water may circulate through the apparatus. By putting a few pieces of ice into the little cistern, E, the temperature of this water may be kept at 32° , and extremely volatile liquids condensed.

The retort may be heated in various ways—as by a lamp beneath, or by placing its body in a sand-bath, or even in the fire; in the last case, the R. is usually protected by a coating of lute.

In ordinary cases requiring higher temperature than glass can bear, earthen retorts are used; for preparation of hydrofluoric acid, retorts of lead are employed; for preparation of strong sulphuric acid, platinum is the best material for the R. Iron retorts are used in the laboratory for preparation of oxygen from black oxide of manganese, and some other processes; and in gas-works, for destructive distillation of coal.

RETOUCH, v. *rě-tűch'* [*re*, again, and *touch*: F. *re-toucher*, to retouch]: to improve, as a painting, by new touches; to go over a work of art a second time in order to restore a faded part, or to add portions for its general improvement: N. in *paint.* and *sculp.*, the finishing off, by some slight applications of the master's hands, of a completed work.

RETRACE, v. *rě-trās'* [*re*, back or again, and *trace*: F. *retracer*, to retrace]: to go back by the same path or course; to renew the defaced outline of a drawing. **RETRACING**, imp. **RETRACED**, pp. *rě-trāst'*.

RETRACT—RETREAT.

RETRACT, v. *rě-trǎkt'* [F. *rétracter*, to retract—from L. *retractus*, withdrawn—from *re*, back; *tractus*, drawn; *traho*, I draw: Sp. *retractar*]: to recall, as something said or declared; to take back; to withdraw; to unsay; to recant. **RETRACT'ING**, imp. **RETRACT'ED**, pp.: **ADJ.** in *bot.*, bent backward. **RETRACTABLE** or **-IBLE**, a. *rě-trǎkt'a-bl* or *-i-bl*, that may be withdrawn or recalled; retractile. **RETRACT'ION**, n. *-shŭn* [F.—L.], or **RETRACTATION**, n. *rě'trǎk-tǎ'shŭn*, act of withdrawing something advanced; a withdrawal; a declaration of change of opinion; recantation. **RETRACT'ILE**, a. *rě-trǎkt'il*, that may be drawn back. **RETRACT'IVE**, a. *-iv*, withdrawing; taking from: N. that which withdraws or takes from. **RETRACT'IVELY**, ad. *-li*.—**SYN.** of 'retract': to abjure; disown; recant; disavow; recall; withdraw; revoke; unsay.

RETRANSFORM, v. *rě'trǎns-fawrm'* [*re*, back or again, and *transform*]: to transform anew; to change back anew.

RETRANSLATE, v. *rě'trǎns-lăt'* [*re*, again, and *translate*]: to translate anew.

RETRAXIT, n. *rě-trǎks'it* [L. *retraxit*, he has withdrawn; *retrahĕrĕ*, to withdraw (see **RETRACT**)]: in *law*, the withdrawing or open renunciation of a suit in court by the plaintiff.

RETREAD, v. *rě-trĕd'* [*re*, and *tread*]: to tread again.

RETREAT, v. *rě-trĕt'* [F. *retraite*, retreat—from L. *retractus*, withdrawn—from *re*, back or again; *trahĕrĕ*, to draw]: to withdraw for safety or seclusion; to retire from any position or place; in *mil.*, to retire before an enemy (see below): N. act of retiring; retirement; seclusion; place of safety or privacy; the retiring of an army before an enemy, or from an advanced position; a military or naval signal either by drum or trumpet. **RETREAT'ING**, imp.: **ADJ.** moving in retreat; going back. **RETREAT'ED**, pp.—**SYN.** of 'retreat, n.': retirement; withdrawal; departure; solitude; seclusion; shelter; refuge; asylum.

RETREAT', in Military Language: retrograde movement of a force, with intention of avoiding encounter with a hostile body. The greatest exertion of talent is requisite in a general to conduct a good R., more depending on arrangement and coolness than even in the preliminaries of a battle. When the enemy pursue, if the R. is not to degenerate into a rout, the retreating army must be covered by a powerful rear-guard, which from time to time must hold the pursuers at bay, while the artillery-train and baggage pass defiles, cross streams, and overcome other special obstacles. A strong R. is made when the rear is formed by a line of solid battalions, of which alternate masses retreat, while those intervening face about and oppose the enemy, and afterward retreat between and to the rear of those which retreated first.

RETRENCH—RETRIEVER.

RETRENCH, v. *rě-trěnsht'* [*re*, back or again, and *trench*: F. *retrancher*, to cut off]: to pare away; to render less or smaller; to abridge; curtail; to diminish expenses. **RETRENCH'ING**, imp. **RETRENCHED'**, pp. *-trěnsht'*. **RETRENCH'MENT**, n. *-měnt*, the act of lopping off or removing what is superfluous; a lessening; diminution of expenses.

RETRENCH'MENT, in Fortification: defensive work, comprising at least ditch and parapet within some other work of a fortress, and intended as a place of retreat for the defenders, whence they may prolong the defense, or capitulate after the faces of the work itself have fallen into the enemy's hands. The R. resembles the *réduit*, except that it is almost always of earth. Retrenchments are made in ravelins, and the re-entering *places d'armes* at the time of constructing those works. A R. is thrown across the gorge of a redan or bastion, or from shoulder to shoulder, when it is apprehended that the salient angle will fall into the possession of the besiegers; these retrenchments are usually made when wanted.

RETRIBUTION, n. *rět'ři-bū'shŭn* [F. *rétribution*; Sp. *retribucion*; L. *retributiōnem*, retribution—from *retribūtus*, given back, restored—from *re*, back; *tribuĕrĕ*, to give or assign]: requital; retaliation; reward or punishment suitable to the action; the rewards or punishment of the final judgment. **RETRIBUTER**, n. *rě-trīb'ū-tér*, one who makes retribution. **RETRIB'UTIVE**, a. *-tív*, rewarding or punishing according to action; repaying; also **RETRIB'UTORY**, a. *-tér-ĭ*. **RETRIB'UTIVELY**, ad. *-lĭ*.—**SYN.** of 'retribution': requital; retaliation; recompense; repayment.

RETRIEVE, v. *rě-trěv'* [F. *retrouver*, to find again—from L. *re*, again; F. *trouver*, to find: It. *trovare*, to find]: to recover; to regain; to bring back from loss or injury to a former good state. **RETRIEV'ING**, imp. **RETRIEVED**, pp. *rě-trěvd'*. **RETRIEV'ER**, n. *-ér*, one who retrieves; a kind of sporting-dog (see below). **RETRIEV'ABLE**, a. *-a-bl*, that may be recovered or regained. **RETRIEV'ABLY**, ad. *-blĭ*. **RETRIEV'ABLENESS**, n. *-bl-něs*, the state of being retrievable. **RETRIEV'AL**, n. *-al*, or **RETRIEVE'MENT**, n. *-měnt*, act of retrieving.—**SYN.** of 'retrieve': to recover; recruit; repair; restore; regain.

RETRIEV'ER: dog trained specially to go in quest of game which a sportsman has shot, and particularly useful in fatiguing ground or in marshy places. The R. is generally cross-bred; the two recognized crosses being that between the Newfoundland and setter, which has the coat smooth and wavy, and that between the Newfoundland and water-spaniel, which has the coat curly. The favorite color is black. Spaniels, crosses of the terrier and spaniel, and terriers also are used as retrievers; and even fox-hounds, blood-hounds, and setters. The training requires much assiduity and patience, the dog being at first apt to be drawn from

RETRIM—RETROCESS.

the proper quest by any water-rat or other creature that presents itself, also to bite the game too hard, injuring it. A thoroughly trained R. therefore commands a high price, being of great use to the sportsman. A high degree of intelligence is requisite in a R.; it is very often the attached companion of its master, and an inmate of the house rather than of the kennel.



Retriever.

RETRIM, v. *rě-trím'* [re, again and trim]: to trim again.

RETRO-, *rě'trō* or *rě'trō* [L.]: a prefix signifying 'backward; back.'

RETROACT, v. *rě'trō-ākt'* [L. *retro*, back; *actus*, done or acted—from *agěřě*, to do]: to act backward; to act on something past or preceding. **RE'TROAC'TION**, n. *-āk'shūn* [F.—L.]: action on something past or preceding. **RE'TROAC'TIVE**, a. *-āk'tiv* [F. *rétroactif*, acting on the past]: affecting what is past; retrospective.

RETROCEDE, v. *rě'trō-sěd'* [F. *rétrocéder*, in law, to make over again—from L. *retro*, back; *ceděřě*, to go or move: It. *retrocedere*, to retrocede]: to go back; to cede or grant back. **RE'TROCE'DING**, imp. **RE'TROCE'DED**, pp. **RE'TROCE'DENT**, a. *-sě'děnt*, in med., applied to diseases which move from one part of the body to another, as gout.

RETROCESS, v. *rě'trō-sěs'* [L. *retro*, back; *cessus*, gone or moved; *ceděřě*, to move: F. *rétrocéder*, in law, to make over again]: in Scots law, to reinvest a man in an estate again by a reconveyance. **RETROCES'SING**, **RE'TROCESSED'**, pp. *-sěst'*. **RETROCESSION**, n. *rě'trō-sěsh'ūn* [F. *rétrocession*, reconveyance]: a moving backward; in Scots law, the act of reconveying an estate to a former owner.

RETRODUCTION—RETROGRADE.

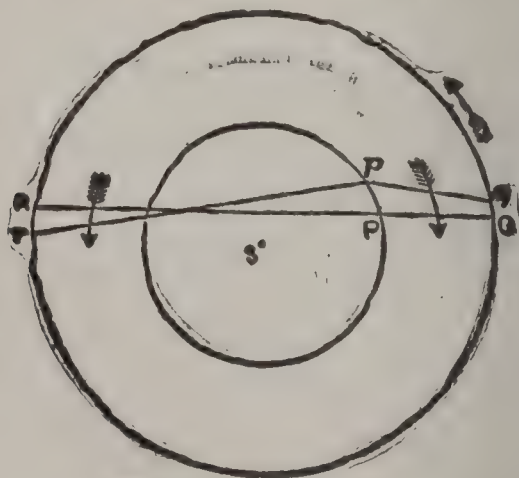
RETRODUCTION, n. *rě'trō-dŭk'shŭn* [L. *retro*, back; *ductus*, led; *ducĕrĕ*, to lead]: a leading or bringing back.

RETROFLEX, a. *rě'trō-flĕks* [L. *retro*, backward; *flexus*, bent; *flecto*, I bend]: bent backward; in *bot.*, bent this way and that.

RETROFRACT, a. *rě'trō-frăkt'*, or **RE'TROFRACT'ED**, a. [L. *retro*, backward; *fractus*, broken; *frangĕrĕ*, to break]: in *bot.*, bent backward, and appearing as if broken.

RETROGRADE, a. *rě'trō-grăd* or *rě'trō-grăd* [F. *rétrograde*—from L. *retrogrădi*, to retrograde—from *retro*, backward; *grădus*, a step: It. *retrogrado*]: going or moving backward; apparently moving from e. to w., as a planet; declining from a better to a worse state; in *bot.*, applied to hairs when they are bent back or down; in *OE.*, contrary; opposite: V. to go or move backward. **RE'TROGRA'DING**, imp. **RE'TROGRA'DED**, pp. **RE'TROGRADA'TION**, n. *-dă'shŭn* [F.—L.]: the act of going or moving backward.—*Retrograde* is a term applied to the motion of the planets and comets among the fixed stars, when they appear to move in the *reverse* order of the signs of the Zodiac (q.v.). All the planets move in the same direction round the sun; therefore their R. motions must be due to their motion relative to the earth. In comets, however, we have instances of motion about the sun in the opposite direction to that of the planets; and in such orbits the motion (referred now to the sun, not to the earth) is said to be retrograde.

In the case of the planets, which is thus the only one that we need consider, let S be the sun, and let the two circles represent the orbits of two planets. First, let the planets be, as at P and Q, toward the same side of



the sun. The inferior planet has of course the greater velocity; therefore, if *p* and *q* represent their positions after the lapse of a given time (second, hour, day, etc.), *Pp* is greater than *Qq*, and therefore the *direction* of the line *pq* (in which one is seen from the other) has rotated in the *opposite* direction to that in which either planet revolves about the sun. Hence, when a superior planet

RETROGRESSION—RETTYERY.

is in opposition (i.e., if Q be Jupiter, and P the earth), it *appears* to move backward among the stars. When an inferior planet is between the earth and sun (i.e., if Q be the earth, and P Venus), it *appears* to move backward also. If the planets be on opposite sides of the sun, as at P and R in the figure, let *p* and *r* be their positions after a given time; then *pr* has turned from the direction PR in the direction in which the planets revolve about the sun. Hence any planet, superior or inferior, appears to move *directly* when the sun is between it and the earth. Between these two opposite cases, there must, of course, be points at which the apparent motion is neither retrograde nor direct—then the planet is said to be *stationary*. This case occurs whenever, for an instant, the lines PQ and *pq* are parallel; that is, when the two planets are moving with equal velocities transverse to the line joining them, these velocities being parallel, and toward the same side of the joining line.

RETROGRESSION, n. *rě'trō-grěsh'ŭn* [L. *retrogressus*, gone back or backward—from *retro*, backward; *gressus*, a stepping (see **RETROGRADE**)]: the act of going backward. **RE'TROGRES'SIVE**, a. *-grěs'siv*, moving backward: declining from a better to a worse state. **RE'TROGRES'SIVELY**, ad. *-lĭ*.

RETROMINGENT, a. *rě'trō-mĭn'jěnt* [L. *retro*, backward; *mingens* or *mingen'tem*, discharging urine]: discharging the urine backward: N. an animal that discharges its urine backward. **RE'TROMIN'GENTLY**, ad. *-lĭ*. **RE'TROMIN'GENCY**, n. *-jěn-sĭ*, the act or quality of being retromingent.

RETROPULSIVE, a. *rě'trō-pŭl'siv* [L. *retro*, backward; *pulsus*, driven—from *pellĕrĕ*, to drive]: driving back; repelling.

RETROVERSE, a. *rě-trōrs'* [L. *retrocrsum*, backward—from *retro*, backward; *versus*, turned—from *vertĕrĕ*, to turn]: turned backward. **RETROVERSE'LY**, ad. *-lĭ*.

RETROSPECT, n. *rě'trō-spěkt* [L. *retrospectus*, looked backward at—from *retro*, backward; *spectŭs*, looked at; *speciō*, I look]: a looking back on things past; review or contemplation of the past. **RE'TROSPEC'TION**, n. *-spěk'shŭn*, the act or faculty of looking back on things past. **RE'TROSPEC'TIVE**, a. *-spěk'tiv*, having reference to what is past. **RE'TROSPEC'TIVELY**, ad. *-lĭ*.—**SYN.** of 'retrospect': survey; re-examination; review.

RETROVERT, v. *rě'trō-vĕrt'* [L. *retro*, backward; *vertĕrĕ*, to turn]: to turn back. **RE'TROVERT'ING**, imp. **RE'TROVERT'ED**, pp.: **ADJ.** turned back. **RE'TROVER'SION**, n. *-shŭn* [L. *versus*, turned]: a turning or falling backward.

RETTYERY, RETTING: see under **RET**.

RETURN—RETZ.

RETURN, v. *rě-těrn'* [*re*, again, and *turn* : F. *retourner*, to return : It. *ritornare*, to return or go back] : to come or go back to the same place ; after a periodical revolution, to commence again ; to go back to the same state ; to revert ; to retort ; to come again ; to bring or send back ; to give back ; to reply or make answer ; to render an official account ; to restore ; to render : N. the act of coming, going, or sending back to the same place ; act of putting in the same place ; the act of coming back to a former state or condition ; repayment ; profit ; requital ; an official report. **RETURN'ING**, imp. **RETURNED**, pp. *rě-těrnd*. **RETURN'ER**, n. *-ér*, one who returns. **RETURN'ABLE**, a. *-a-bl*, that may be restored ; legally to be returned, given, or rendered. **RETURNS**, n. plu. *rě-těrnz'*, statistics in a tabulated form issued by government for general information ; profits or receipts in business ; the figures or state of the poll at an election. **RETURN CHAISE**, a carriage going back empty from a post-station. **RETURN DAYS**, in a *court of law*, certain days on which writs are returnable, and on which defendants must appear in court. **RETURN TICKET**, a ticket for a railway or other journey and back. **RETURNING OFFICER**, the presiding officer at an election who returns the persons duly elected.—**SYN.** of 'return, v.' : to go back ; come back ; come again ; revisit ; repay ; transmit ; restore ; requite ; recompense ; remit ; render ;—of 'return, n.' : retrogression ; revolution ; repayment ; profit ; advantage ; remittance ; retribution ; requital ; restitution ; relapse ; report ; account.

RETUSE, a. *rě-tūs'* [L. *retusus*, blunted—from *re*, back ; *tunděre*, to beat] : in *bot.*, having the extremity broad, blunt, and slightly depressed ; appearing as if bitten off at the end.

RETZ, *rěts*, **JEAN FRANÇOIS PAUL DE GONDI**, Cardinal **DE** : 1614–1679, Aug. 24 ; b. Montmirail, France. He was taught by St. Vincent de Paul, who endeavored to fit him for the priesthood, though he seemed to have neither the inclination nor the moral qualification for such a career. He was offered a bishopric by Louis XIII. ; but did not secure the object of his ambition, that of coadjutor to his uncle Henri de Gondi, abp. of Paris, with the prospect of succession, till the death of the king. By his eloquence and apparent sympathy with the people, he became very popular. He was, practically, the leader of the revolt against Mazarin, and for several years was prominent in political affairs, being noted for both cunning and boldness. Through misapprehension on the part of the pope, he was made a cardinal 1651, the following year was imprisoned, escaped two years later, lived a while in Spain and later in Italy, was allowed to return to France 1661, but was required to resign the archbishopric, though he was given in exchange a rich abbacy and other inducements. He then retired from political life and gave many years to the work of paying his enormous debts. His *Memoirs*.

RETZSCH—REUCHLIN.

which he left in MS., have appeared in various editions, and the first two vols. of his collected works were published 1872. He died at Paris.

RETZSCH, *rětsh*, FRIEDRICH AUGUST MORITZ: German painter and engraver: 1779, Dec. 9—1857, July 11; b. Dresden. He studied at the acad. of his native city, where he became a prof. 1824. He acquired celebrity by his illustrations in outline of the great German poets, Schiller, Goethe, etc.—those of Goethe's *Faust* particularly being well known, not only in his own country, but also in France and England. His illustrations of Fouqué's charming romances, *Undine* and *Sintram*, are singularly beautiful. R. executed several fine works on subjects from classical mythology, e.g., *The Child Bacchus Asleep on a Panther*, *Diana*, *Love and Psyche Embracing in the Clouds*, *A Satyr and Nymph*, *The Four Epochs of Human Life*, etc. Among his other works of conspicuous merit are—*The Struggle of Light and Darkness*, *The Chess-Players*, and *Fantasies*. R. ranks as one of the most original, thoughtful, and vigorous artists of modern Germany. His works evince a strong, inventive, and cultured imagination, whose efforts at expression never degenerated into sentimentalism. As miniature oil-painter, also, he was very successful.

REUCHLIN, *roych'lin*, JOHANN; known also by his Grecized name CAPNIO: one of the first and most active promoters of Hebrew studies in Germany, whose labors and struggles aided greatly in bringing the Reformation: 1455, Dec. 28—1522, June 30; b. Pforzheim, in Baden. He received his earliest education at Schlettstadt; and 1473, as travelling companion to Prince Friedrich of Baden, visited Paris, and studied Greek under Hermonymus of Sparta, besides assiduously practicing Latin composition. Two years later, at Basel, he continued Greek study, and wrote his Latin dictionary, *Vocabularius Latinus Breviloquus Dictus* (Basel 1478). He studied law at Orleans, France (1479), and fought at Poitiers (1480); then returned to Germany, married, and became at Tübingen teacher of jurisprudence and literature. In 1492 he was raised to the rank of a count of the German empire, and about the same time began the study of Hebrew under a learned Jew. In 1496, at Heidelberg, he wrote a satirical comedy, *Sergius, sine Capitis Caput*, against the unworthy Augustinian monk Holzinger, who had been made chancellor of Würtemberg. In 1498 he was sent to Rome by Philip the Elector-palatine, and there made wonderful proficiency in Hebrew and Greek. R. returned to Würtemberg 1499. In 1506 appeared his *Rudimenta Linguae Hebraicæ*, a work of which he was justly proud, as made 'without any foreign help,' and as 'the first attempt to execute a grammar of the Hebrew tongue' (see his preface). His Hebraic studies, which embraced the post-biblical Jewish literature, were—in their consequences—the most important of his life, drawing him into bitter strife

REUNION.

will learned Jews, Jewish proselytes, and the Dominicans, and directly and powerfully helping on the Reformation. In 1510 the struggle between Light and Darkness, as the Germans regard it, broke out. In that year, Johann Pfefferkorn, a Jewish proselyte, in the true spirit of a renegade, called on princes and subjects to persecute the religion of his fathers, and especially urged the emperor to burn or confiscate all Jewish books except the Bible. R. remonstrated, maintaining that no Jewish books should be destroyed except those directly attacking Christianity. This tolerant attitude drew the enmity of the Dominicans, particularly the inquisitor Jakob van Hoogstraten. These enemies of R. held possession of the universities of Paris, Louvain, Erfurt, and Mainz; but all the distinguished and independent thinkers in Germany were on the side of the brave and humane scholar. Among the *Reuchlinists*, as they were termed, were Ulrich von Hutten (q.v.) and Franz von Sickingen (q.v.); to the first of whom (in conjunction with Rubeanus, etc.) we owe *Epistolæ Obscurorum Virorum* (q.v.); and to the second of whom R. owed his safety, for Von Sickingen threatened (1519) Hoogstraten and his monks with terrible vengeance if they did not cease to persecute 'his teacher, Doctor Reuchlin.' When the Reformation was inaugurated by the burning of the papal bull (1517), R. instinctively felt that a crisis had come, and exulted in the heroism of Luther. 'God be praised!' he said: 'we have now got a man who will give them [the monks] mighty hard work.' Luther, in a letter to R. (1518), tells him that he had longed to take part with him in his noble struggle, but had never found an opportunity. But the scholar's troubles were not at an end. A quarrel broke out between Ulrich, Duke of Würtemberg, and the Swabian League, in the course of which R. became a prisoner of Duke Wilhelm of Bavaria, who, however, generously restored him his freedom, and 1520 appointed him prof. at the Univ. of Ingolstadt. While here, he received a call to Würtemberg, which he declined, but sent Philip Melanchthon in his stead. In 1522 the plague broke out at Ingolstadt, and R. again withdrew to Tübingen, to devote himself to learned studies, but soon afterward died at Stuttgart. R.'s life has been written by Gehres, Meyerhoff, and Geiger.

REUNION, n. *rě-ün'yŭn* [F. *réunion*, return to a state of union after separation or discord—from *re*, back or again; *union*, union—from mid. L. *uniōnem*, unity—from L. *unus*, one: Sp. *reunion*, reunion]: cohesion of parts after separation, as the lips of a wound; an assembly of familiar friends or associates.

RÉUNION, ILE DE LA, *ěl děh lâ ră-ŭ-ně-ông'*: official name after the French Revolution of 1789 and since that of 1848 for the island Ile de Bourbon (see BOURBON, ILE DE). The latter name was used before 1789, and 1814-48; and *Ile de Bonaparte* was the name 1809-14.

REUNITE—REUSS.

REUNITE, *v.* *rē'ū-nīt'* [*re*, again, and *unite*] : to join after separation ; to reconcile ; to become united again.
RE'UNI'ING, *imp.* **RE'UNITED**, *pp.* : **ADJ.** reconciled.

REURGE, *v.* *rē-érj'* [*re*, again, and *urge*] : to urge again.

REUS, *rā'ós* : manufacturing town of Spain, province of Tarragona ; about 5 m. from the seaport of Salou. The modern portion consists of wide plazas and streets. The prosperity of R. dates from about 1750, when a number of English merchants settled there. R. contains 80 establishments for cotton-spinning alone, 5,000 looms, and many silk-ribbon factories, and manufactures soap, brandy, casks, and machinery. Pop. 64,000.

REUSS, *royss* : name of two sovereign principalities (R.-GREIZ, *-grīts*, and R.-SCHLEIZ, *-shlīts*) of Germany, between the kingdom of Saxony and the Prussian duchy of that name ; separated from each other by the circle of Neustadt, an outlying portion of the grand-duchy of Saxe-Weimar. Since 1616 the possessions of the House of R. have been divided between the elder and the younger lines.—The principality of R.-Greiz (the elder line) has 123 sq. m. ; chief town and seat of govt. Greiz (q.v.).—The principality of R.-Schleiz (the younger line) has 320 sq. m. ; cap. Schleiz (q.v.).—Of both principalities the surface is hilly, traversed by the Frankenwald, whose chief summits are above 2,000 ft. in height. The chief rivers are the Saale and the Elster, whose valleys are extensive and well cultivated. Large tracts are covered with forests and in pasture ; and cattle and timber are exported. By the constitution of 1867, R.-Greiz obtained much-needed reforms. The existing constitutional form of govt. in R.-Schleiz dates from 1852. The pop. in both states is almost wholly Prot., and is industrially prosperous. Pop. (1900) R.-Greiz 68,396 ; R.-Schleiz 139,210."

REUSS, EDUARD WILHELM EUGEN, D.D., LL.D., PH.D. : theologian : 1804, July 18—1891, May 1 ; b. Strasburg. He studied philology in his native city, theology at Göttingen and Halle, and oriental literature under De Sacy at Paris. He commenced teaching in the theol. school at Strasburg 1828, became prof. extraordinary 1834, and was prof. from 1836 till his death. He favored the liberal German methods of criticism and investigation, was a voluminous writer, and did much to popularize the study of the Bible in France. Some of his books have been translated into various languages. Among his works were a *History of the Books of the New Testament* ; *Christian Theology in the Apostolical Century* ; *History of the Canon of the Holy Scriptures in the Christian Church* (1872) ; and *The Epistles of Paul* (1883). He also translated the Bible into French, with notes (17 vols.) ; and with Professors Baum and Cunitz attempted a complete edition of the works of Calvin, of which 44 vols. have been published. He died at Strasburg.

REUSSITE--REVALUE.

REUSSITE, n. *roys'it*, or **REUSSIN**, n. *roys'in* [after *Reuss*, an Austrian mineralogist]: a hydrous sulphate of soda and magnesia, occurring in white, flat, six-sided crystals.

REUTER, *roy'tér*, **FRITZ**: novelist and poet who wrote in the Plattdeutsch or Low-German dialect: 1810, Nov. 7—1874, July 12; b. Stavenhagen, in Mecklenburg. While studying law at Jena, he became involved in the revolutionary aims of the students' association, the *Burschenschaft*, was sentenced to death 1833, but suffered instead seven years' imprisonment in Prussian fortresses. His numerous writings give a vivid picture of the distinctive manners and customs of the Low-German country: the best known are *Olle Kamellen* and *Ut Mine Stromtid*.

REU'TER, **PAUL JULIUS**, Baron: well known from the familiar newspaper heading 'Reuter's Telegrams'; b. at Cassel, 1818. He early became a telegraphist. In Aix-la-Chapelle he gradually formed an organization for collecting and transmitting telegraphic news; and 1851, having become a naturalized Brit. subject, transferred his headquarters to London. As telegraphs extended throughout the world, his system multiplied its ramifications, and newspapers gained in copiousness and freshness of news. In 1865 R. made over his business to a limited liability company; 1871 became a German baron; 1872, obtained from the shah of Persia the exclusive privilege of making all railways of Persia and working all mines and forests; 1889 this concession was annulled, and he received instead that of the imperial bank of Persia. D. 1899, Feb. 25.

REUTLINGEN, *royt'ling-én*: town of Würtemberg, in a beautiful district, fertile in fruit and wine, on the Eschatz, feeder of the Neckar, 20 m. s. of Stuttgart. Its houses are old and picturesque; and it was formerly surrounded by walls and moats, whose site is now occupied by streets. The Church of St. Mary, completed 1345, surmounted by a pierced tower 325 ft. high, which is considered the most beautiful in the kingdom, is a noble Gothic edifice. Woolen and cotton yarns are spun, and cloth, leather cutlery, hosiery, etc., are manufactured. Pop. (1885) 17,319; (1890) 18,542; (1900) 21,494.

REVACCINATE, v. *rē-vāk'sin-āt* [*re*, again, and *vac-cin-ate*]: to vaccinate a second time. **REVAC'CINA'TION**, n. *-ā'shūn*, repetition of vaccination.

REVALENTA ARABICA, *rēv-a-lēn'ta ār-āb'i-ka*: empirical diet for invalids, to which extraordinary restorative virtues are attributed. It is only a preparation of the common lentil, its first name being formed for disguise from its botanical name, *Ervum Lens* (see **ERVALENTA**): its real value is about equal to good pea-meal.

REVALUE, v. *rē-vāl'ū* [*re*, again, and *value*]: to value a second time. **REVAL'UA'TION**, n. a second valuation.

REVEAL—RÉVEILLAUD.

REVEAL, v. *rě-věl'* [F. *révéler*, to reveal—from *Ľ. re-vēlārē*, to uncover—from *re*, back; *vēlo*, I cover or veil; *vēlum*, a veil: It. *rivelare*]: to uncover; to lay bare or open; to make known something before concealed; in a special sense, to make known from God. REVEAL'ING, imp. REVEALED, pp. *rě-vēld'*: ADJ. disclosed; made known. REVEAL'ER, n. *-ēr*, one who reveals. REVEAL'ABLE, a. *-a-bl*, that can be revealed. REVEAL'ABLY, ad. *-bli*. REVEAL'ABLENESS, n. *-bl-nēs*, the state of being revealable. REVELATION, n. *rěv'ē-lā'shūn* [F.—L.]: the act of disclosing to others what was formerly unknown to them; that which is revealed. REVELATION, n. the communication of truth by God to men; the revealed truth itself (see below): usual name for the Apocalypse (see REVELATION OF JOHN, THE).—SYN. of 'reveal': to disclose; uncover; divulge; unveil; discover; open; impart; show; communicate.

REVEALS, n. plu. *rě-vēlž'* [L. *revellērē*, to pull or tear out—from *re*, back; *vello*, I pluck or pull]: vertical sides

of the aperture for a window-frame, a door-frame, etc., between the face of the wall and the framing, etc.: spelt also REVELS', n. plu. *-vēlž'*. The word is used sometimes in the singular form.



Reveal.

(Norman Doorway, Filwell, Oxfordshire, 1150.)

RÉVEILLAUD, *rā-vā-yō'*, EUGENE: religious reformer: b. France. His parents were Roman Catholics, and his mother was anxious that he should enter the priesthood; but his disinclination to this was so great that he was allowed to study law. He was a bril-

liant scholar at the national schools, and took high rank among his classmates. After graduation he became connected with some important provincial papers, in which he treated public questions with great freedom and ability. He soon became convinced that the great need of France was religion, and that the Rom. Cath. faith was not adapted to the wants of the state. At this time he was a freethinker; but he boldly declared his belief that to the lack of a proper faith was to be traced the failure of the French Revolution. He wrote a volume advocating Prot. doctrines, not, as he plainly avowed, for their religious bearings, but merely for their influence on the social and political life. He afterward became a believer in Christianity in its personal relations, and endeavored to disseminate its principles. He is an eloquent speaker, and excited great interest by his lectures in the large cities of France; and 1880 visited the United States, where he had large and appreciative audiences.

REVEILLE—REVELATION.

REVEILLE, n. *rě-vělyā*—frequently in the U. S. service *rěv-ěl-ě'* [F. *réveiller*, to awake—from *re*, again; *éveiller*, to wake—from L. *ex*, out; *vigilārē*, to watch; *vigil*, wakeful]: in *mil.*, the beat of drums or sound of trumpet at daybreak to announce to the troops that the night is past—after which the sentries do not challenge.

REVEL, n. *rěv'ěl* [Swiss, *räbeln*, to make a disturbance: Bret. *ribla*, to revel: prov. F. *revel*, gayety, disturbance: Dut. *ravelen*, to be excited, to be restless: *revel* is derived by some from L. *rebellārē*, to rebel (see **REBEL**)]: a feast with loose and noisy jollity; a carouse; a riotous banquet: V. to feast with loose and noisy merriment; to enjoy with a feeling of unbounded freedom; to carouse. **REV'ELLING**, imp.: N. a feasting with noisy merriment; enjoyment under the feeling of unbounded freedom. **REV'ELLED**, pp. *-ěld*. **REV'ELLER**, n. *-ěl-ěr*, one who revels. **REV'ELRY**, n. *-rě*, loose and noisy festivity; playful jollity. **REVEL-ROUT**, n. *-rowt*, a mob or rabble engaged in tumultuous festivity.

REVEL, *rěv'ěl*, or **REVAL**, *rěv'âl*: Russian seaport, cap. of Esthonia, on the small bay of R., 238 m. w.s.w. of St. Petersburg. It is divided into the upper and lower towns, which till 1878 had separate administrations. The upper, on a rocky ridge, contains the cathedral, the castle, gymnasium, gov.'s residence, and the houses of the nobility. The lower town extends to the sandy shore of the harbor. Till lately R. was a fortress of the first rank. The people are mostly of German extraction. It was long held by the Lithuanian Order of Knights; was made over to Sweden 1562; bombarded by the Danish and Lübeck fleets 1569; and besieged by Peter the Great, and annexed to the Russian empire 1710. In 1713, a naval harbor was begun. The chief exports are flax, linseed, rye, skins, corn, and potato-brandy, supplied by land from the govts. of Esthonia, Pskov, and Livonia. The chief imports are salt, fruits, wine, and manufactured and colonial goods. Pop. (1880) 50,860; (1888) 51,277; (1897) 64,578.

REVELA'TION [see **REVEAL**]: theological term commonly applied to the knowledge of the Living God which He has given man in Holy Scripture. Of this knowledge concerning God, the center is Jesus the Christ; the originating and the communicating power is the Holy Spirit; the basis or field taken for its development in human history is the experience into which certain chosen men in various ages have been led concerning God; and the agents or media for its historical record are the selected and inspired writers of the Old and New Test.—In itself, however, the word R. is properly, and of late years has been frequently used, not only of the divine knowledge communicated in Scripture, but of all divine knowledge communicated to man through whatever channel. Conscience and reason are in themselves modes of Divine R. so far as they witness of the divine laws which bind man's moral life,

REVELATION OF JOHN.

and only in harmony with which can the health and happiness of that life be found. History also is a species of R., unfolding, as it does, the same divine laws collectively in the race. Nature, too, originating from God, reveals His power, wisdom, and goodness; and science, the interpreter of nature, so far as it makes known the great laws governing the material universe, truly makes known to us the divine will. But since all these other means of common R. have been historically found insufficient for man without the written word, the idea of R. is to be associated centrally and eminently with the Scriptures. They are in a special sense the medium of divine R. to the human race: God has made known therein more fully and clearly than elsewhere His will and character. They are the key to all other revelations of God. But we must not confound R., in its fact and essence, with the books of Scripture. These books are only the highest or most distinguished form or *medium* of R., which, in itself and essentially must always imply communication *from one mind to another*; and, in a religious sense, from the divine to the human mind. Scripture is, in its several books, the pre-eminent medium of this contact or interchange of the divine and human, inasmuch as it registers the growing manifestation of God in Christ from the creation onward in human history. It is the record of special communications which God made in time past to holy men, 'who spake as they were moved by the Holy Spirit,' which, when duly taken by a receptive mind, *constitutes* a R.—we may well say *the* R.—for us; yet the R. is not the mere record, but the knowledge which the record conveys to our minds.—See BIBLE: BIBLE, THE: INSPIRATION OF THE BIBLE.

REVELATION OF JOHN, THE (*Apokálypsis Iōannou*): last book of the New Test. It professes to be the production of John, traditionally known as 'The Divine' (*ho theológos*). It has been a subject of dispute, however, whether John, writer of this book, is the beloved apostle, writer of the fourth gospel and of the three Epistles. Evidence and authority seem strongly to favor the view that he is the same; though some distinguished names—Luther in the past, and Lücke among modern critics—have adopted the negative view. The author's simple mention of himself by his name John; his description of himself as one 'who bare record of the word of God, and of the testimony of Jesus Christ, and of all things that he saw,' is held to indicate strongly his identity with the author of the gospel, who speaks of himself in similar language (John xix. 35). He writes from the Isle of Patmos, and the apostle is the only John distinctly named in early Christian history as an exile in Patmos. The authority, moreover, with which the writer addresses the seven churches in Asia is such as seems to pertain only to an apostle. So far as historical testimony is concerned, the authority of the early Christian Fathers—e.g., Justin Martyr,

REVELS.

Theophilus of Antioch, and Irenæus, and Clement of Alexandria—all point to the Apostle John as the author of the R. The date of the book is supposed to be the very close of the 1st c., 95–97, at the end of the reign of Domitian. We cannot here particularize the contents of the book, nor can we enter into any detailed statement of the various interpretations which have been given of it. It has been the subject of very conflicting commentary. It has been stated that ‘not less than 80 systematic commentaries are worthy of note, and that the less valuable writings on the subject are unnumbered, if not innumerable.’ All that we can do here is to characterize the different general schools, into which the interpreters of this sublime and mysterious book may be arranged. Nearly all these schools are sub-divided according to minor variations.—1. The *Præterist* School of interpreters consider the Revelation as fulfilled in the past, especially in the great conflicts of Christianity with Judaism and Paganism, and its triumph over them in the ages following the time in which it was written; to this class of interpreters belong, among others, Grotius, Hammond, Bossuet, Calmet, Eichhorn, Ewald, Lücke, De Wette, Stuart, Lee, Maurice. 2. The *Futurist* School regard the book, except the first three chapters, as referring to events yet to come; this view has been advocated, in modern times, by such writers as Dr. J. H. Todd, Dr. S. R. Maitland, Newton, and many others. 3. What has been called the *Historical and Continuous* School of expositors, who regard the R. as a progressive symbolic history of the vicissitudes of the church from the 1st c. to the end of time. To this school of interpreters belong a host of eminent names, such as Mede, Sir I. Newton, Vitringa, Bengel, Faber, Elliot, Wordsworth, Alford, Hengstenberg, Ebrard, and others. 4. Another school of expositors are not disposed to allow any exact prophetic character to the book, but simply to regard it as a species of grand and inspiring symbolical poem, setting forth the eternally-recurring principles of the divine govt. The real fulfilment of the R. therefore, is sought by these interpreters not in any definite historical events, but in the vindication of these principles shadowed forth more or less in great historical crises, yet transcending all partial historical results. According to this view, the lofty symbolic imagery of the R. has never found and will never find its exact counterpart in any earthly facts; but it finds its spiritual counterpart constantly in the career of the church—the unceasing conflict of truth with error, of righteousness with sin, of life with death, of the kingdom of God with the kingdom of evil, and will attain its true realization only at the sure and final triumph of the Son of God over all the power of sin and death. ,

REVELS : see REVEALS.

REVELS—REVENGE.

REV'ELS, MASTER OF THE; or LORD OF MISRULE: officer, who, in England, was attached to royal and other distinguished houses, whose function it was to preside over the amusements of the court, or of the nobleman to whose house he was attached, during the 12 Christmas holidays. This officer, sometimes called *Master of the Tents and Revels*, became a permanent appendage to the English court in the reign of Henry VIII; and his duties included the keeping the tents and pavilions which accompanied the sovereign on a royal progress, as also the keeping the dresses and masks used in entertainments given at court, and the providing of new ones as required. In Queen Elizabeth's time, we find the Mastership of the Revels divided into several distinct offices. The office continued till the reign of George III., when it was abolished.—See CHRISTMAS: FOOLS, FEAST OF: BOY-BISHOP.

REVENGE, n. *rě-věnj'* [F. *revanche*, requital, revenge: OF. *révenger*, to revenge: L. *re*, back or again; *vindicāre*, to make a claim upon—from *vindex* or *vindicem*, a claimant, an avenger]: a malicious or spiteful infliction of injury in return for an injury; the passion for retaliation excited by an injury or an affront: V. to inflict pain or injury maliciously in return for injury done, or an affront received; to punish in return—an injury is *revenged*, a crime *avenged*. REVEN'GING, imp. REVENGED', pp. *-věnjd'*. REVEN'GER, n. *-jér*, one who revenges. REVENGE'FUL, a. *-fúl*, vindictive; prone to revenge. REVENGE'FULLY, ad. *-lě*. REVENGE'FULNESS, n. *-něs*, the state of being revengeful. REVEN'GINGLY, ad. *-lě*. REVENGE'MENT, in *OE.*, revenge; vengeance.—SYN. of 'revengeful': vindictive; vengeful; resentful; spiteful; malicious.

REVENUE.

REVENUE, n. *rěv'ěn-ū* [F. *revenu*, revenue—from *re-venir*, to return—from L. *re*, back or again; *venīrē*, to come]: annual income from rents, etc.; the public income of a state derived from taxes, etc. **REVENUE-CUTTER**, an armed vessel employed by the custom-house authorities to suppress smuggling. **REVENUE-OFFICER**, an officer in the service of the customs; an exciseman.—See **REVENUE, PUBLIC**.

REVENUE, PUBLIC: public income of a state, derived from taxes, etc. A state has a right to reserve part of the property of the citizens, or of the produce of the country, or to exact contributions from the citizens, to supply the expense of carrying on the govt. It is entitled also to augment the riches of the state by taxing merchandise imported into or exported from the country, and by taking a small proportion of the things consumed. In England, the crown is dependent on supplies voted by parliament for its ordinary support and existence. The popular voice, in the matter of taxation, was admitted as early as the reign of Edward I., an act of that monarch declaring 'that no tallage or aid shall be taken or levied without the goodwill and assent of the archbishops, bishops, earls, barons, knights, burgesses, and other freemen of the land.' The laity were thenceforth taxed by the votes of their representatives. The lords spiritual and temporal voted separate supplies for themselves; and from the reign of Edward I., the clergy, as a body, granted subsidies, either as a national council of the clergy, in connection with parliament, or, at a later period, in convocation, till the disuse of this right in the reign of Charles I. As the commons increased in political importance, the subsidies voted by them became the principal sources of revenue, and they gradually assumed their present position in regard to taxation and supply, including the lords as well as themselves in their grants. Concurrently with parliamentary taxation, imposts were formerly levied by royal prerogative alone; but none of these survived the revolution of 1688. A grant by the commons is not effectual without the ultimate assent of the queen and house of lords; the lords, however, cannot alter a bill of supply, though they may refuse their assent to it. The aggregate of the different sources of revenue is paid into a fund called the 'Consolidated Fund,' founded by 27 Geo. III. c. 47, which is chargeable with the interest of the national debt, and is mortgaged to raise an annual sum for the maintenance of the royal household and Civil List (q.v.).

The following table exhibits the gross revenue and expenditure of the United Kingdom, in the year ending 1890, Mar. 31; and the budget estimates for 1902-03:

REVENUE.

INCOME.

Source.	Receipts, 1889-90.	Estimate, 1902-03.
Customs	£ 20,424,000	£ 35,200,000
Excise	24,160,000	32,700,000
Stamps	13,060,000	8,200,000
Land tax	1,035,000	740,000
House duty	1,965,000	1,760,000
Property and income tax	12,770,000	38,600,000
Post office	9,450,000	14,800,000
Telegraph service	2,320,000	3,630,000
Crown lands	430,000	475,000
Interest on advances	279,155	880,000
Estate, etc. duties .....	.....	13,200,000
Miscellaneous	3,411,161	2,000,000
Total	89,304,316	152,185,000

EXPENDITURE.

Service.	Payments. 1889-90.	Estimate, 1902-03.
National debt	£ 25,226,760	£ 23,000,000
Naval defense fund	1,428,572	.....
Int. on war debt .....	.....	4,400,000
Other consolidated fund services	1,634,193	1,645,000
Payments to local taxation acc'ts .....	.....	1,155,000
Army	17,360,911	69,310,000
Ordnance factories .....	.....	355,000
Navy	13,842,241	31,255,000
Civil services	15,589,990	27,448,000
Customs and inland revenue	2,654,891	3,039,000
Post-office	5,463,205	9,762,000
Telegraph service	2,176,000	4,211,000
Packet service	664,000	779,000
	86,040,763	176,359,000
Debt redemption service	42,551	.....
Excess of income	3,221,000	.....
	89,304,316	176,359,000

In 1801 the gross revenue of Great Britain was £35,-218,525, and of Ireland £2,919,217; in 1861-2 Great Britain raised £61,360,749, Ireland £6,792,606. So that in 1801 the revenue was £3 7s. per head of pop., and in Ireland, 11s. 2d.; 1861-2, the amount per head was £2 13s. in Great Britain, and £1 3s. 5d. in Ireland. At the conquest, the public revenue of England is estimated to have been about £400,000; and in the reign of Henry VI., it had fallen to £65,000. Under Henry VIII., it rose to £800,000; and under Anne, at the union with Scotland, it was £5,700,000.

The following table shows the receipts and expenditures of the United States during the fiscal year ending 1890, June 30: (For latest see UNITED STATES.)

REVENUE CUTTER SERVICE.

RECEIPTS.

From Customs	\$229,688,584.57
“ Internal Revenue.....	142,000,705.81
“ Profits on Coinage, Bullion Deposits, and Assays	10,217,244.25
“ Sales of Public Lands.....	6,358,272.51
“ Fees--Consular, Letters-patent, and Land..	3,146,692.32
“ Sinking Fund for Pacific Railways.....	1,842,564.52
“ Tax on National Banks.....	1,301,326.58
“ Customs Fees, Fines, Penalties, etc.....	1,299,324.52
“ Repayment of Interest by Pacific Railways..	705,691.52
“ Sales of Indian Lands.....	372,288.15
“ Soldiers' Home, Permanent Fund.....	308,886.99
“ Tax on Sealskins.....	262,500.00
“ Immigrant Fund.....	241,464.00
“ Sales of Govt. Property.....	192,128.99
“ Deposits for Surveying Public Lands.....	112,314.79
“ Depredators on Public Lands... ..	35,852.37
“ Dist. of Columbia.....	2,809,130.93
“ Miscellaneous Sources.....	1,600,014.81
“ Postal Service.....	60,882,097.92
Total	\$463,963,080.55

EXPENDITURES.

For Civil Expenses.....	\$ 23,638,826.62
“ Foreign Intercourse.....	1,618,276.59
“ Indian Service.....	6,708,046.67
“ Pensions.....	106,936,855.07
“ the Military Establishment, including Rivers and Harbors and Arsenals... ..	44,582,838.08
“ the Naval Establishment, including Vessels, Machinery, and Navy-yard Improvements..	22,006,206.24
“ Miscellaneous Objects, Public Buildings, Light-houses, and Collecting Revenue.....	43,563,696.85
“ the Dist. of Columbia.....	5,677,419.52
“ Int. on Public Debt.....	36,099,284.05
“ Deficiency in Postal Revenue.....	6,875,036.91
“ Postal Service.....	60,882,097.92
Total.....	\$358,618,584.52

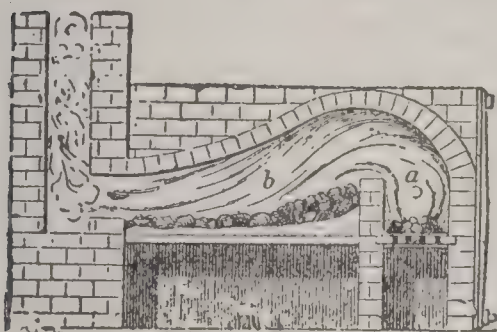
The total receipts for the 12 months ending 1903, June 30, were \$558,887,525, of which \$283,891,718 were derived from customs and \$230,115,255 from internal revenue, including \$131,327,431 from spirits and \$43,574,870 from tobacco. Total expenditures \$506,272,075, as follows: Civil and misc., \$125,096,600; war, \$118,310,382; navy, \$82,970,233; Indians, \$12,922,004; pensions, \$138,416,666; int., \$28,556,796; excess of receipts, \$52.

REVENUE CUTTER SERVICE: organization of vessels, crews, and officers, for preventing frauds on the customs revenue. In the R. C. S. of the United States, 1890, there were 36 vessels employed: two additional vessels were in process of construction 1890, Dec. These vessels cruised 288,112 nautical m., boarded 23,161 vessels; found 915 violating the law: fines imposed, \$369,616. Expenditures on acct. of R. C. S., \$937,033.67. In 1902 there were 40 vessels in commission, all but 5 being propellers. One, the Chase (cadet practice) carried 7 guns. In the first session of the 11st congress a bill was passed in the house of representatives transferring the R. C. S. from the treasury dept. to the navy dept.: the bill received the approval of the heads of both depts., but did not become a law.

REVERB—REVERE.

REVERB: see under REVERBERATE.

REVERBERATE, v. *rě-věr'bér-āt* [L. *reverberātus*, beaten, cast, or driven back—from *re*, back or again; *ver'bērō*, I strike or beat; *verber*, a lash, a whip: It. *riverberare*: F. *réverbérer*]: to return or send back, as a sound; to echo; to reflect, as rays of light; to drive from side to side, as flames; to be repelled; to resound: **ADJ.** in *OE.*, beating back; resounding. **REVER'BERATING**, imp. **REVER'BERATED**, pp. **REVER'BERA'TION**, n. *-ā'shūn* [F.—L.]: the act of reflecting light and heat, or of repelling sound. **REVER'BERA'TOR**, n. *-ā'tér*, that which reverberates; a reflecting-lamp. **REVER'BERA'TORY**, a. *-ā'tér-ī*, returning or driving back sound or light or heat. **REVERBERATORY FURNACE**, furnace so constructed that matter, e.g., ore, may be heated in it without coming in direct contact with the fuel. It



Section of Reverberatory
Furnace.

consists essentially of three parts—a fireplace at one end; in the middle, a flat bed or sole, on which the material to be heated is placed; and at the other end, a chimney to carry off the smoke or fume. Between the fireplace and the bed, a low partition-wall, called a fire-bridge, is placed, and the whole built over with a flat arch, dipping to-

ward the chimney. The flame plays over the fire-bridge, and is reflected, or *reverberated*, on the material beneath, hence the name. See **LEAD**. **REVERB**, v. *rě-věr'b'*, in *OE.*, to reverberate.

REVERE, v. *rě-věr'* [F. *révéer*, to revere—from L. *reverēri*, to stand in awe or fear of—from *re*, back or again; *verēor*, I feel awe: It. *reverire*]: to regard with fear mingled with respect and affection; to honor; to hold in estimation. **REVE'RING**, imp. **REVERED'**, pp. *-vēr'd'*. **REVE'RER**, n. *-rér*, one who reveres. **REVERENCE**, n. *rěv'ér-ēns* [F. *révérence*—from L. *reverentiā*]: fear mingled with respect and affection, as for a parent or one in authority; a title given in addressing a clergyman; an act of obeisance; a bow; a courtesy; poetical title of a father: **V.** to regard with fear mingled with respect and affection. **REV'ERENCING**, imp. **REV'ERENCED**, pp. *-ēnst*. **REV'ERENCER**, n. *-sér*, one who reverences. **REV'ERENT**, a. *-ēnt*, expressing reverence; humble; submissive. **REV'ERENT'IAL**, a. *-ēn'shal*, proceeding from reverence, or expressing it. **REV'ERENT'IALY**, ad. *-lī*, in a reverential manner. **REV'ERENTLY**, ad. *-lī*, in a reverent manner; respectfully.—**SYN.** of 'revere': to venerate; honor; adore; reverence; worship;—of 'reverence': awe; veneration; honor; adoration; deference; respect.

REVERE—REVEREND.

REVERE, *ré-vēr'*, PAUL: 1735, Jan. 1.—1818, May 10; b. Boston. From his father he learned the trade of goldsmith, and he attained skill as a designer for engravings on silver plate. In the expedition against Crown Point 1756 he was a lieut. of artillery. Returning to Boston, he began business as a goldsmith, and gave attention to engraving on copperplate, an art which he had learned without a teacher. He issued various emblematic prints which were of great advantage to the patriot cause, refused to serve on the grand jury 1774, because of the action of parliament in reference to the relations of the supreme court judges to the legislature; engraved the plates from which the paper money of the Mass. province was printed 1775, and by request of the provincial congress learned to make gunpowder, and established a mill for its manufacture. He was one of the leaders of the celebrated 'tea party' in Boston harbor, and of a secret society which watched and reported the movements of the British; and 1775, Apr. 18, took his famous midnight ride to Lexington described by Longfellow in one of his popular poems. He was a trusted messenger of the committee of safety, became lieut.col. of artillery, and in various ways rendered invaluable service to the patriot cause. He laid the corner stone of the State House at Boston 1795, and was one of the founders and the first pres. of the Massachusetts Charitable Mechanics' Assoc. He was the first man in America to make copper sheets and bolts, and he established 1801 at Canton, Mass., a copper rolling business which is still continued. He was a prominent Mason, and was noted for kindness and benevolence. He died at Boston.

REVEREND, a. *rěv'ér-ěnd* [F. *révérend*; It. *reverendo*, reverend—from L. *reveren'dus*, venerable—from *reverēri*, to stand in awe or fear of (see **REVERE**)]: entitled to or worthy of reverence; a title of honor applied by courtesy to a clergyman: in Rom. Cath. countries it is applied to members of the various religious orders. **REV.**; a common contraction of *reverend*, usually prefixed to the name of a clergyman. **VERY REVEREND**, prefixed to that of a dean, the principal of a Scotch university when a clergyman, and the moderator of the General Assembly of the Church of Scotland. **RIGHT REVEREND**, prefixed to the name of a bishop in Britain or the United States. **MOST REVEREND**, prefixed to the name of an archbishop in Britain or the United States. An archdeacon has the prefix Venerable. The style Reverend is generally adopted by, and given to, the clergy or ministers of the different dissenting bodies in England, and of all denominations in America; though a few ministers decline to adopt it.

REVERIE.

REVERIE, n. *rěv'ěr-ĭ*, or REV'ERY, n. plu. REV'ERIES, -ĭz [F. *rêverie*, a musing—from *rêver*, to dream: OF. *resverie*, ideas floating irregularly in the mind; *resver*, to speak idly (see also RAVE)]: loose, irregular train of ideas floating in the mind; a fit of deep musing, during which all or greater part of the external senses remain unconscious of surrounding objects. R. is described as of three kinds: (1) *absence of mind*, in which the attention is truant, and does not readily yield to the will; (2) *abstraction of mind*, in which the mind is concentrated on some particular theme by the direct act of the will; and (3) *brown study*, gloomy or dull reverie; reverie in which the will relaxes itself, and gives full play to any train of ideas which may be uppermost. —R. has been defined the dream of a waking man; but it differs in many respects from dreaming. Regarded in the light of mental philosophy, R. is, like dreaming, the involuntary action of the fantasy or imaging power, though it may be guided somewhat by attention. In dreams, the senses are closed to the outer world, whose presence in R. prevents our mistaking fancies for realities, as in dreams. In a higher sense, R. is a word sometimes applied to a state of abstraction, when the mind is wholly engaged in earnest thought. In an exaggerated form, it is rare; but when it goes beyond absence of mind, or abstraction from what is passing around, it is abnormal and unhealthful; and may, if at all approaching a habit, be regarded as a phenomenon of an imperfectly constituted, if not of a diseased nervous temperament. In general, R. takes the direction of personal pursuits, tastes, and experiences; the mind may be occupied according to the age, character, or pursuits of the individual, by calculations, profound metaphysical inquiries, by fanciful visions, or by such trivial and transitory objects as to make no impression on consciousness, so that the period of R. is left an entire blank in memory. The most obvious external feature marking this condition is the apparent unconsciousness, or only partial perception, of external objects. In what may be designated the first stage, castle-building, this inattention is only apparent, as the surrounding scenery may enter into the illusion, and constitute part of the romance. In the celebrated case of Hartley Coleridge, whose double life, indulged in for years, affords illustrations of voluntary creations ultimately extorting a degree of belief and expectation—from a field near his home burst forth a cataract, from which flowed a river; on the banks of this arranged themselves fertile fields, a populous region, divided into realms and kingdoms, governed by laws, having traditions, histories. His 'Ejuxria' was an analagon to the world of fact, embellished by imagination. This cherished unreality was parted with reluctantly. A more advanced stage of the affection is where, independently of the will, and in opposition to the ordinary habits of the individual, and under peculiar circumstances. there

REVERSE.

occur a loss of cognizance of surrounding objects and relations, and a state of abstraction or brown study, in which absurd and incongruous things are said and done. Ludicrous examples of this state are where a man loses his way in his native town, forgets his own name, or retires to bed in the middle of the day. In a third stage or form, the man in a R. cannot be recalled to active perception, loses individuality, and is absorbed in the contemplation of unreal, though self-suggested impressions: this is seen in such cases as St. Teresa, and in the trances of Mysticism, Quietism, Second Sight.—*Memoir of Hartley Coleridge*, Disraeli's *Life of Lord G. Bentinck*, Maury's *Le Sommeil et les Rêves*.

REVERSE, v. *rěvėrs'* [F. *re-vers*, reverse, opposite side—from L. *re*, back or again; *versus*, turned—from *verto*, I turn: It. *riversare*, to upset or overturn]: to turn or put in the contrary direction, position, condition, or order; to turn upside down; to invert; in *law*, to change by a contrary decision; to annul; in *OE.*, to return: ADJ. having the contrary or opposite direction; opposite: N. a contrary; an opposite; generally a change for the worse; misfortune; in *mil.*, the back or rear of a body of troops: in *numismatics*, the side of face of a coin or medal opposite to the side on which the head or principal figure is impressed—the latter being called the *obverse*: there is, however, generally an inscription or device on the reverse; and when the lower part of it is markedly separated from the rest, it is called the *Exergue* [Gr. *ex ergou*, outside the work], and bears a secondary inscription. REVER'SING, imp. REVERSED', pp. *-zėrst'*: ADJ. changed or turned to the contrary; annulled; in *conch.*, applied to a shell whose whorls run from right to left, or whose aperture is on the left, when placed before a spectator with its apex upward. REVERSAL, n. *rě-vėr'sal*, a change; a contrary decision. REVERSE'LY, ad. *-vėrs'li*. REVERSE'LESS, a. *-lės*, not to be reversed. REVERSIBLE, a. *rě-vėr'si-bl* [F.—L.]: that may be reversed. REVER'SIBLY, ad. *-blė*. REVERSEDLY, ad. *-sėd-lė*. REVER'SION, n. *-shėn* [F.—L.]: a returning; right to future possession or enjoyment, as an estate or annuity after the death of a person now living; succession; the right which a person has to any inheritance or place of profit after the decease of another. When the emergence of a reversionary right is certain and the date fixed, the marketable value of the reversion is easily calculated (see INTEREST): when the reversion is contingent, depending on some future event of unknown date, the problem becomes complex (see works that treat of Life Insurance, etc.). REVER'SIONARY, a. *-ėr-ė*, that may be enjoyed in succession. REVER'SIONER, n. *-ėr*, one who holds a reversion. To REVERSE AN ENGINE, to cause it to perform its revolutions in an opposite



Reverse
Shell.

REVERSION TO TYPE—REVEST.

direction, with the view of quickly bringing it to a stand or of causing it to move backward. **REVERSE CURVE**, on *railways*, a curve like the letter S, consisting of two curves lying in opposite directions. **REVERSE FIRE**, in *mil.*, the fire which proceeds from the rear. **REVERSED ARMS**, arms carried under the right arm, muzzle to the rear and pointing downward, the left hand passed behind the back and grasping the barrel—only so carried at military funerals. **REVERSING GEAR**, apparatus for causing a locomotive or marine engine to move backward.—**SYN.** of 'reverse, v.': to invert; overthrow; subvert; annul; revoke; overturn; overset; repeal; contradict;—of 'reverse, n.': change; vicissitude; defeat; check; misfortune; opposite.

REVERSION TO TYPE: re-appearance in offspring of ancestral feature or type. Atavism (q.v.), is nearly synonymous, but properly more restricted, referring to the return of characters observed in less remote ancestors, of the human race especially. R. is sometimes seen in cultivated plants, exhibiting features of the wild plant. Domestic animals do not always return to the feral form and color, when they run wild, but in many instances or in some degree they do. Pigs have resumed the stripes and other characteristics of the wild boar. Black is supposed to be the original color of sheep, to which some in almost every flock return, despite most careful exclusion for many generations. The crossing of breeds sometimes reproduces at once the original type, as in the case of pigeons, and white and black fowls; the former was followed by offspring like the wild blue Rock Pigeon; the latter became red like the original jungle-cock of India. In plants there is often a partial morphological reversion, as when stamens are re-converted into petals, or petals into leaves. Consult Darwin's *Variation of Animals and Plants under Domestication*; and Lankester's *Degeneration, a Chapter in Darwinism*.

REVERT, v. *rě-věrt'* [L. *revertĕrĕ*, to turn back—from *re*, back or again; *verto*, I turn]: to fall back; to turn back; to refer back to; to return to the original owner, or to his heirs. **REVERT'ANT**, a. in *her.*, bent and rebent. **REVERT'ED**, in *her.*, flexed and reflexed, or bent in the form of the letter S; revertant. **REVERT'ING**, imp. **REVERT'ED**, pp. **REVERT'IBLE**, a. *-ĭ-bl*, that may revert or return. **REVERT'IVE**, a. *-ĭv*, changing; causing reversion. **REVERT'IVELY**, ad. *-lĭ*.

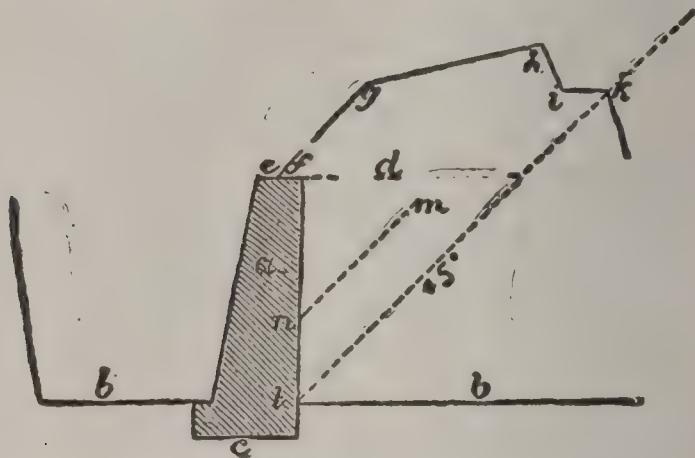
REVERY: see **REVERIE**.

REVEST, v. *rě-věst'* [Norm. F. *revestir*; F. *revêtir*, to clothe—from L. *re*, again; *vestĭrĕ*, to dress, to clothe (see **VEST**)]: in *OE.*, to clothe again; to vest again in possession of an office. **REVEST'ING** imp. **REVEST'ED**. pp.

REVET—REVICTUAL.

REVET, *v.* *rě-věť'* [*F. revêtement*, the lining of a ditch—from *revêtir*, to clothe (see preceding entry)]: in *mil.*, to face with masonry or other material, as an embankment. **REVETTING**, *imp.* **REVETTED**, *pp.* *rě-věť'ěd*.

REVETMENT: in permanent fortification, a retaining-wall of masonry for holding back the earth of which works are composed. The most ordinary position of revetments is for the **escarp** and **counterscarp** of the ditch



ac, revetment; *b*, bottom of ditch, level of ground within the work; *de*, top of rampart; *fgh*, parapet; *ik*, banquette; *kle*, mass of earth supported by revetment; *m*, centre of gravity of mass; *n*, point of greatest pressure on revetment.

(see **FORTIFICATION**). The most important of these two is the **escarp**, which has to hold back the great mass of earth represented by the rampart, parapet, banquette, etc. It is usually of solid brickwork or stone, 5 ft. thick at the top, and sloping outward as it descends (on the ditch-side only) to the extent of 1 in 6. Prior to Vauban's time, the escarp **R.** was usually raised to the top of the parapet; but as in this case the artillery of a besieger played on the top of the wall, and ruined it soon after the siege commenced, Vauban adopted the principle—thereafter followed—of raising it no higher than the crest of the glacis, or about 7 ft. above the natural ground, leaving the parapet above of sloped earth only. When the main ditch is 24 ft. deep, the scarp **R.** will be about 30 ft. high. Additional strength is imparted to the **R.** wall by massive buttresses at every 15 ft., called *counterforts*; and these, again, are sometimes connected and strengthened by masonry arches outside the **R.** The **R.** forms a terrible barrier to an assaulting party. In field-works, a temporary **R.** may be made of timber, turf, hurdles, or other materials at hand.

REVIBRATE, *v.* *rě-vĩ'brāt* [*re*, again, and *vibrate*]: to vibrate back, or in return.

REVICTUAL, *v.* *rě-vĩť'l* [*re*, again, and *victual*]: to furnish anew with provisions.

REVIEW—REVISIT.

REVIEW, n. *rě-vŭ'* [*re*, again, and *view*: F. *revue*, a review—from *revoir*, to see again, to revise—from L. *re*, again; *vidēre*, to see]: a second examination, as for improvement or amendment; a survey; critical remarks on a new publication; a periodical, generally consisting of essays, criticism, etc. (see PERIODICALS): in *milit.*, public inspection of troops or ships in parade order by a superior officer. Reviews always comprise a march past the inspecting-officer in column, and a general salute in line; to these is frequently added a mock-battle, for amusement of spectators, and for practicing the troops in warlike manœuvres: V. to look back on: to view and examine again; to reconsider; to criticise, as a new publication; to inspect, as troops. **REVIEWING**, imp.: **ADJ.** inspecting, as an army: N. the practice of writing and publishing criticisms of new publications; the business of a reviewer. **REVIEWED**, pp. *rě-vŭd'*. **REVIEWER**, n. *-ér*, one who reviews; a literary critic. **REVIEWAL**, n. *-al*, the review of a book.—**SYN.** of 'review, n.': re-examination; resurvey; survey; criticism; reconsideration; revise; revisal; revision; retrospect.

REVILE, v. *rě-vil'* [L. *re*, again; *vilis*, mean, worthless (see VILE)]: to treat with opprobrious and contemptuous language; to upbraid: N. in *OE.*, reproach; contumely. **REVI'LING**, imp.: N. the act of reproaching; the act of using contumelious language. **REVILED'**, pp. *-ild'*. **REVI'LER**, n. *-lér*, one who reviles. **REVI'LINGLY**, ad. *-lŭ*.—**SYN.** of 'revile, v.': to vilify; calumniate; reproach; upbraid.

REVINDICATE, v. *rě-vŭn'dŭ-kāt* [*re*, again, and *vindicate*]: to vindicate again; to demand and take back what has been lost.

REVISE, v. *rě-vŭz'* [F. *reviser*—from L. *revisĕre*, to come to see again—from *re*, again; *visĕre*, to look at attentively—from *vidēre*, *vĭsum*, to see: Sp. *revisar*, to revise]: to examine carefully for purposes of correction; to alter; to amend: N. a re-examination; among *printers*, a second proof-sheet pulled for correction and comparison with the first. **REVI'SING**, imp. **REVISED'**, pp. *-vŭzd'*: **ADJ.** re-examined for correction. **REVI'SER**, n. *-zér*, one who revises. **REVI'SAL**, n. *-zal*, the act of examining for correction and improvement. **REVI'SION**, n. *-vŭzh'ŭn* [F. —L.]: the act of examining for correction. **REVI'SIONAL**, a. *-al*, pert. to revision. **REVI'SOR**, n. *-vŭ'zér*, in *Russia*, one who takes the number of inhabitants. **REVI'SORY**, a. *-zér-ŭ*, able or tending to revise. **REVISING BARRISTERS' COURTS**, courts held in the autumn in districts throughout England to revise the list of voters for members of parliament.—**SYN.** of 'revision': revisal; re-examination; review.

REVISED' VER'SION: see BIBLE, CANTERBURY REVISION OF THE.

REVISIT, v. *rě-vŭz'it* [*re*, and *visit*]: to visit again.

REVIVALS.

REVIVALS OF RELIGION: public awakenings of interest in personal religion. The term *Revival of Religion*, briefly *Revival*, is employed to denote an increase of faith and of earnest activity in individual Christians, particularly after a period of religious declension; also an increase of religion in a community or neighborhood, both through the *revival* of those who are already religious, and through the *conversion* of the previously irreligious. It does not necessarily (though it may usually) involve a previous declension: sometimes it may denote the joyous harvest-time when the operation of natural laws brings the ingathering of fruits from seeds sown in quiet patience. In these applications, its use is countenanced by several passages of Scripture; the idea which it is intended to convey is, however, far more frequently suggested by passages in which the term does not occur. The idea of revival is connected particularly with the system of 'evangelical' doctrine, especially with that part of it which relates to the work of the Holy Spirit in awakening the church to a fuller spiritual life, and in the conversion of sinners.

What are commonly called **R.** are religious movements or excitements extending over a neighborhood, sometimes over a country. By those who regard them as genuine, it is urged in their favor, that they are in accordance with what the Scriptures teach us to expect, and that we have instances of a similar kind recorded in the Scriptures themselves—both in the history of the Jews, and in the early history of the Christian Church, particularly in the effusion of the Holy Spirit on the day of Pentecost, and afterward in connection with the ministry of the apostles, when many were converted through a single discourse, or in other cases evidently within a short time. It is urged also that such operations of the Divine Spirit, though supernatural, are not therefore against nature; and that indeed they accord with the law of periodicity—of ebb and flow—which is observed in mental states. It is further urged that the promise of the effusion of the Spirit in 'the latter days' was not completely fulfilled on the day of Pentecost, but relates to the whole period of the Christian dispensation, and that, according to many prophecies, we have reason to expect even more of it in future times than there has ever hitherto been, so that 'a nation shall be born in a day, and the kingdoms shall be the Lord's.' The Reformation of the 16th c., and the partial movements of the same kind which preceded it, are regarded as essentially **R.** of religion—the Reformation itself the greatest since the apostolic age. The great development of religious fervor in England in the 17th c., is, according to this view, a revival, and the extravagances which attended it as mere excrescences, like those of the Anabaptists in the time of the Reformation. The next great movement of the same kind was that in the first half of the 18th c., in which the Methodist churches originated (see **METHODISTS**). It was accompanied with many circumstances

REVIVALS.

similar to those which have attended later R. The term revival did not begin to be commonly employed till after this period; and the revival in New England and other parts of N. America about the same time, was then and still is generally designated the *Great Awakening*. Its beginning seems to have had no connection with the Methodist movement in England, though subsequently they became connected through Whitefield's visits to N. America, and his powerful preaching to vast crowds. The revival in New England, which began about 1734, under the ministry of Jonathan Edwards (q.v.), at Northampton, and rapidly extended over great part of New England and N. Y., was speedily followed by similar religious movements in Scotland, not altogether independent of it. Such movements had not been unknown in Scotland, though confined to particular times and localities. In 1625 and following years, there was a revival at Irvine, under the ministry of David Dickson, which extended to the neighboring parish of Stewarton, and was contemptuously styled by its adversaries the *Stewarton sickness*. In 1630, several hundreds are said to have been converted at once, through a sermon preached at Kirk-of-Shotts by John Livingstone, then a young preacher, afterward an eminent minister of the Church of Scotland, and a sufferer for the cause of Presbyterianism. About the same time (1623-41), similar R. took place in Ireland under the ministry of Scottish Presb. ministers in Ulster, to which the origin of the Irish Presb. Church is in great part ascribed. Local R. are recorded at various places in Scotland remote from each other, 1742, 1798-1800, 1804-13; and an extensive one in Wales, resulting in the formation of the Welsh Calvinistic Meth. Church, but not confined to that connection. Local revivals attended the ministry also of some evangelical ministers of the Church of England.

In 1839, a revival began at Kilsyth, Scotland, which spread to many other places. During a sermon by William C. Burns in the parish church, the emotion of many of the congregation broke out in sobs and cries, so that for a time the preacher's voice could scarcely be heard. For months, religion was the almost exclusive subject of interest to a great part of the inhabitants of the parish, and many meetings for public worship were held besides the ordinary Sabbath services, at which great emotion was often shown. In the first half of the 19th c. there were many R. in the United States, notable among which were those under Charles G. Finney (q.v.), who also visited England, and preached to vast crowds in London and other cities. These R. were generally confined to congregations, colleges, or localities, but sometimes, as in connection with Dr. Finney, extended over great districts. Throughout at least the northern and middle United States, the idea had become familiar to the popular mind, that R. ought to be expected from time to time; from which naturally followed the belief that special means should be employed to produce them.

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From this resulted, in some cases, increased earnestness in preaching and prayer, with greater assiduity in all ordinary means for promotion of religion; in other cases, direct endeavors to produce excitement, as, in the states farther southward, by *camp-meetings*—assemblies of great numbers of people held in the open air, at which exciting addresses were delivered by preacher after preacher, to work upon the nervous sensibilities.

Nothing of this kind, however, attended the beginning of the great religious movement in 1857 and the two following years. Its origin is ascribed in part to the thoughts and feelings awakened during a period of great commercial distress. It began in New England, particularly in Conn. and Mass., and rapidly extended to N. Y. and over the middle and western states. It was not generally attended with scenes of great excitement. Strong, but calm religious feeling was its general characteristic. In New York, almost every congregation received great accession of members, and prayer-meetings were held in churches, public halls, and even theatres, for about an hour in the middle of the day, which were attended by crowds of persons actively engaged in business. More than 2,000 places in N. Y. (state) were reported as partaking of this revival. Very soon afterward a similar movement took place in n. Ireland, not apparently arising from that in America, though certainly connected with it soon afterward, and promoted by the tidings of it. It rapidly extended over the whole north of Ireland, and subsequently to Scotland, Wales, and parts of England. As a rule, it was free from excitement, and characterized by little else than intensity of religious feeling. Another remarkable revival, which extended over the greater part of Great Britain 1874-5, originated in the efforts of two American evangelists, Moody and Sankey, and was characterized by almost entire absence of sensationalism, and by a general religious awakening. See MOODY, DWIGHT LYMAN: EVANGELIST.

R. have occurred in other parts of the world. A widespread movement of this kind in Switzerland, extended under the ministry of Felix Neff to the Prot. district of Dauphiné, and to the neighboring Vaudois or Waldenses, on the Italian side of the Alps. Similar religious movements have occurred in recent years in many parts of Sweden. The Rom. Cath. Chh. has had in various countries many well-organized and efficient R., termed *missions* (see MISSION). The Church of England, and recently the Prot. Episc. Chh. in the United States, have organized special 'missions,' developing wide and deep religious interest under earnest and pungent preaching, though carefully guarded against mere sensationalism. Congl., Presb., and Meth. missionaries have had some remarkable R. in heathen lands. Notable were those which many years ago swept the Sandwich Islands, and resulted in the organization of immense Congl. churches; and those among the Telugus in India, among whom the

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Bapt. missionaries gathered converts numbering more than 12,000 within 5 years.

R. have been accounted for in very different ways; but in general, too evidently in mere accordance with the different religious views of those by whom the theories have been proposed. Some opponents have attempted to explain the phenomena of religious excitement extending over wide districts, and rapidly spreading from place to place, by the supposition of a kind of epidemic disease affecting the mind. Another opinion prevalent among those who see in R. nothing good, is, that they are the result of endeavors to work on the feelings. It is replied, that though this theory might be plausible, if only such instances were considered as the camp-meetings of the Southern Methodists, it is far from being in accordance with ascertained facts as to many of the R. in America and in other countries. It is certain that many of these have taken place without any attempt to work on the feelings, more than has been always ordinary and proper in the preaching of the gospel; and that the greatest outburst of emotion has often been connected with preaching of the most simple and sober kind.—By those who believe in the reality of R. as productive of a true increase of religion, they are ascribed to the operation of the Holy Spirit, to which, according to the ‘evangelical’ scheme, the ‘conversion’ of every individual soul is ascribed, and also all increase of faith and piety in the converted. R. have, however, often been regarded with doubt by many who believe in the whole doctrine of the work of the Spirit as generally held in the Prot. churches, but who regard the excitement frequently attending them as inconsistent with the proper sobriety and solemnity of religion, and think the progress of religion ought rather to be gradual, and without much to call attention to it at one time more than another. To this it is replied, that while a blessing on the regular use of ordinances may confidently be expected if duly sought by prayer, there is yet much in Scripture and in the nature of the human mind to indicate that particular seasons may be unusually marked by the evidence of a blessing; and further, that R., when they take place, generally show the usefulness of the ordinary religious means, as they seldom occur among persons very ignorant of Christian truth, but rather among those who have previously had the most faithful ministrations. With regard to the excitement attending many revivals, it is argued that this excitement is not wonderful, if persons are suddenly impressed with a deep sense of their sins and of the danger of being separated forever from God, and that it is in some measure also to be expected in those brought by quick transition from deep distress to a full sense of God’s forgiveness and love. Are we to be surprised, it is asked, if persons in such circumstances, after much effort of self-restraint, cry aloud in the congregation, or fall down, overpowered by their emotions? It is sometimes alleged by the oppo-

nents of R., that much of the excitement manifested in them is merely hysterical; and some of their advocates have rashly denied that this is ever the case; others, more prudent, admitting it, deny that it affords any just cause of objection, and maintain that hysterical excitement is for certain temperaments natural and unavoidable in such circumstances; they acknowledge, however, that like excitement produced by causes which have nothing to do with religion, it may extend from one to another, even where the cause in which it originated does not operate; and they therefore decline to consider such excitement as in itself any evidence of the religious or spiritual condition of the persons affected by it. It may be conceded also by the friends of R., that such occasions are favorable and inviting to persons whose zeal exceeds their discretion, and too often afford opportunity for ignorant and self-conceited or over-excitible persons to thrust themselves forward as teachers and conductors of religious exercises. Friendly criticism may be directed also against too much urging of persons who have been of very profligate life to recount their own history, which has sometimes been carried so far, that they have seemed even to glory in the enormity of their past wickedness. The criticism also has been made that certain peculiar modes of expression, not unaptly designated a kind of slang, have sometimes come into use in connection with R., with the unhappy effect of prejudicing against them many minds, particularly among the educated classes. This is an infelicity which R. share with other great popular movements.

Endeavor has here been made to present the subject fairly; but it is evident that the opinion formed by any one will depend largely on his general religious views. As to mere religious excitement, however, and bodily affections resulting from it, many facts show, what might be presumed beforehand, that these may be connected with religious views extremely at variance. Excitement may be produced by religious views utterly false, as well as by the true. Heathenism has always abounded in it; Mohammedanism has much of it. Also, allusion may be made to the extravagances of the Flagellants (q.v.), and to the strange scenes of the Dancing Mania.

The subject of this article has been treated in a multitude of publications, almost every revival which takes place calling forth new pamphlets, narrative and controversial. The works of Jonathan Edwards deserve the first attention of those who wish to study the subject; Finney's views and accounts also are important; and much information as to the history of R. is in Gillies's *Historical Collections Relating to Remarkable Periods of the Success of the Gospel*. See also Mrs. Lundie's work *Revivals in the British Isles*; Robe's *Narrative of the Revival of Religion at Kilsyth, Cambuslang, and other Places in 1742* (new ed., Glasgow, 1840). Edwards maintains the genuineness of revivals with perhaps more force of argument than any writer has since done; and most of

REVIVE—REVOCABLE.

those extravagances which have sometimes attended revivals to the present time, might have been avoided if those whose religious views accord with his had more carefully studied his discriminating remarks and sober counsels. No work has yet been produced such as Edwards in one of his letters expresses a strong desire to see—‘a history of true, vital, and experimental religion, and enthusiasm, bringing down the history from age to age, judiciously and clearly making the distinction between the one and the other.’

REVIVE, v. *rě-vīv'* [F. *revivre*, to rise from the dead—from L. *revivēre*, to live again—from *re*, again; *vivo*, I live: It. *rivivere*]: to return to life; to recover from a state of neglect; to recover new life or vigor; to restore or bring again to life; to be reanimated after depression; to reanimate; to quicken; to refresh; to bring back to the memory; to inspire anew with hope or joy; in *chem.*, to recover or reduce to its natural state, as a metal after calcination. **REVIVING**, imp.: **ADJ.** coming to life again; reanimating; refreshing: **N.** the act of coming to life again. **REVIVED'**, pp. *-vīvd'*. **REVIVINGLY**, ad. *-lī*. **REVIVAL**, n. *-val*, recovery to life from death or apparent death; return to activity from a state of languor; recovery from a state of neglect or depression; renewed and more active attention to the importance of religion; the means by which this is accomplished (see **REVIVALS**). **REVIVALIST**, n. *-vāl-ist*, one who endeavors to promote a greater earnestness in religion. **REVIVER**, n. *-vér*, he or that which invigorates or revives; one who brings into notice again after neglect. **REVIVOR**, n. *-vér*, in *law*, bill or writ in renewal of a suit abated by the death of one of the parties to it. **REVIVIFICATION**, n. *rě-vīv'ĩ-fĩ-kā'shŭn* [L. *faciō*, I make]: restoration of life; the act of recalling to life. **REVIVAL OF LEARNING** (see **RENAISSANCE**, **THE**). —**SYN.** of ‘revive’: to refresh; reanimate: renovate; renew; recover; reinvigorate; awaken; animate; quicken; rouse; comfort.

REVIVIFY, v. *rě-vīv'ĩ-fĩ* [*re*, and *vivify*]: to give new life or vigor to; to reanimate.

REVIVISCENT, a. *rěv'ĩ-vīs'sěnt* [L. *revivis'cens* or *reviviscen'tem*, coming to life again—from *re*, again; *vives'co*, I get life; *vivēre*, to live]: regaining or restoring life. **REVIVIS'CENTE**, n. *-sěns*, or **REVIVIS'CENCY**, n. *-sěn-sĩ*, renewal of life; reanimation.

REVIVOR: see under **REVIVE**.

REVOCABLE, a. *rěv'ō-ka-bl* [F. *révocable*—from L. *revocab'ilis*, revocable—from *revocāre*, to recall—from *re*, back or again; *voco*, I call: It. *revocabile*]: that may be recalled; that may be repealed or annulled. **REVOCABLY**, ad. *-blī*. **REVOCABLENESS**, n. *-bl-něs*, or **REVOCABIL'ITY**, n. *-bīl'ĩ-tĩ*, the quality of being revocable. **REVOCATION**, n. *-kā'shŭn* [F.—L.]: the calling back of a thing granted; repeal; reversal (see below). **REVOCATORY**, a. *rěv'ō-kā'tér-ĩ*, tending to revoke.

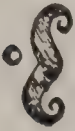
REVOCATION—REVOLUTION.

REVOCA'TION, in Law : the withdrawing or annulling of a deed or will otherwise valid. A will is said to be always subject to R., even though the testator say in the most express language that it is not to be revocable; because a will is supposed to be subject to the ever-varying occasions of life. On the other hand, a deed is not capable of R., and is in its nature final; but if an express proviso is inserted which reserves a power of R., then this is a valid power, provided the directions of the deed are strictly followed.

REVOKE, v. *rě-vōk'* [F. *révoquer*—from L. *revocārē*, to recall—from *re*, back or again; *voco*, I call: It. *revocare*]: to repeal; to annul; to reverse, as a law; to declare void; to renounce at cards: N. the act of renouncing at cards. **REVOK'ING**, imp. **REVOKED**, pp. *rě-vōkt'*. **REVOKE'MENT**, n. *-mēnt*, repeal; recall; revocation.—**SYN.** of 'revoke, v.': to annul; cancel; abolish; recall; countermand; rescind; repeal; abrogate; reverse; abjure.

REVOLT, v. *rě-vōlt'* [F. *révolter*, to raise a rebellion; *révolte*, a revolt—from L. *revolūtus*, revolved—from *re*, back; *volvērē*, to roll: It. *rivoltare*, to revolt; *rivolta*, a revolt]: *literally*, to turn round; to fall off or turn from one to another; to renounce allegiance to a sovereign or a state; to shock; to cause to turn away from with abhorrence or disgust; in *OE.*, to change: N. a change of sides; insurrection; rebellion; in *OE.*, one who changes sides. **REVOLT'ING**, imp.: **ADJ.** doing violence to the feelings; exciting abhorrence. **REVOLT'ED**, pp.: **ADJ.** turned away from allegiance or duty; shocked. **REVOLT'INGLY**, ad. *-lī*. **REVOLT'ER**, n. *-ēr*, one who revolts.—**SYN.** of 'revolt, n.': insurrection; sedition; revolution; rebellion; mutiny.

REVOLUTE, a. *rěv'ō-lōt* [L. *revolūtus*, revolved—from *re*, back or again; *volvērē*, to roll]: in *bot.*, rolled backward from the margins upon the under surface, as the edges of certain leaves are in *vernation*; also **REV'OLUTIVE**, a. *-lō-tīv*.

 **REVOLUTION**, n. *rěv'ō-lō'shūn* [F. *révolution*, Revolute. revolution—from L. *revolūtīōnem*—from *revolūtus*, revolved—from *re*, back; *volvērē*, to roll: It. *rivoluzione*]: the motion of a body round any fixed point or centre; motion or course of anything which brings it back to the same state or point; change or alteration of system; an extensive and sudden change in the constitution of a country (see below). **REV'OLU'TIONARY**, a. *-ēr-ī*, pert. to a revolution, or tending to produce one: N. a revolutionist. **REV'OLU'TIONIZE**, v. *-īz*, to effect an extensive or entire change in the form or principles of a thing. **REV'OLU'TIONIZING**, imp. **REV'OLU'TIONIZED**, pp. *-īzd*. **REV'OLU'TIONIST**, n. *-īst*, one engaged in endeavoring to effect a change in the government of a country.

REVOLUTION—REVOLUTIONARY TRIBUNAL.

REVOLU'TION, in Politics: any extensive sudden change in the constitution of a country.—The English R. of the 17th c. began in the early part of the reign of Charles I., with the struggle between that king and his parliament: in 1642 the struggle became a civil war, in which the parliament obtained ascendancy, and brought Charles to the block 1649. A commonwealth followed, under the protectorate of Oliver Cromwell, which was succeeded 1660 by the restoration of monarchy in the person of Charles II.; but the arbitrary rule of James II. brought the king and people again into antagonism; and James having fled the country, William III. was called to the throne by the R. of 1688, under such conditions and safeguards as secured the balance of the constitution.—The French R. was a violent reaction against that absolutism which in the course of time had supplanted the old feudal institutions of the country. It began with an outbreak of insurrectionary movements at Paris 1789, July, including the destruction of the Bastille. 1793, Jan. 21, King Louis XVI. was beheaded: the Christian religion was soon discarded, the sacredness of the Republic and worship of Reason solemnized, and the disastrous Reign of Terror (q.v.) and of blood followed, which was brought to an end 1794, when Robespierre himself suffered on the guillotine the fate to which he had condemned countless multitudes of his countrymen.—The American R. began 1775, by which the Brit. N. Amer. colonies, throwing off their dependence on Great Britain, became the United States (q.v.).—The French R. of 1830 drove Charles X. into exile, and raised Louis Philippe, Duke of Orleans, to the throne by the will of the people. In the French R. of 1848, France rose against Louis Philippe, and adopted for a time a republican govt.—the revolutionary contagion spreading temporarily over most of continental Europe. The third French republic also was established 1870-1 by a R.—By the Italian R. of 1859-60, the various minor sovereigns of Italy were driven into exile, and the whole of the peninsula became (with the incorporation of the Roman territories 1870) subject to King Victor Emmanuel.—In 1889, Nov., Brazil was changed from an empire to a republic by “a bloodless revolution.”

REVOLU'TIONARY CAL'ENDAR, n.: calendar adopted by the French Republic: see **CALENDAR**.

REVOLU'TIONARY TRIBU'NAL: name given specially to the infamous court of judgment—not of justice—instituted by the French convention 1793, Mar., on a motion by Danton (q.v.), who considered that such a court had become necessary, inasmuch as the recent disasters of the national armies on the frontiers had led to dangerous conspiracies against the revolutionary govt. Its members were chosen from the various departments, and their appointment was ratified by the convention. Their function was to sit in judgment on all persons accused of crimes against the state, and from

REVOLUTIONARY WAR—REVOLVER.

their sentence, delivered with appalling promptitude, there was no appeal. During the 'Reign of Terror,' when Fouquier-Tinville (q.v.) was 'public accuser,' the R. T. acquired a horrible notoriety, soon abolishing almost all forms of justice, neither hearing witnesses on behalf of the accused, nor allowing him opportunity of defense, but blindly executing the orders of the 'Committee of Public Safety,' which was merely a tool in the hands of Robespierre (q.v.).—In the provinces, similar tribunals, under the name 'Revolutionary Committees,' were established, the commissaries-general of which, e.g., Carrier (q.v.), shot or drowned *suspects* in crowds.

REVOLU'TIONARY WAR: see UNITED STATES.

REVOLVE, v. *rě-volv'* [L. *revolvĕrĕ*, to revolve—from *re*, back; *volvĕrĕ*, to roll]: to roll in a circle; to turn round, as on an axis; to move round a centre; to turn over and over, as in the mind; to meditate on. REVOLV'ING, imp.: ADJ. rolling or turning round; performing a revolution. REVOLVED', pp. *-vōlvd'*. REVOLV'ENCY, n. *-vōlv'ĕn-sĭ*, act, state, or principle of revolving. REVOLV'ER, n. *-ĕr*, a pistol having several chambers to one barrel, each containing a separate charge, and which can be discharged in rapid succession (see below). REVOLVING LIGHT, the light of a Light-house (q.v.), so arranged as to appear and disappear at certain intervals. REVOLVING STORMS, or CYCLONES, violent storms which, while advancing bodily in a definite direction, rotate about an axis with great rapidity.

REVOLV'ER, in Firearms: weapon which, by means of a revolving breech, or revolving barrels, can be made to fire more than once without reloading. The invention is not recent—specimens with even the present system of rotation being still in existence which were manufactured at the beginning of the 17th c. Probably the first R. to suggest itself was one in which several barrels were mounted on an axis, and made to revolve by the action of the trigger, so that their powder-pans came successively under the action of the lock. This principle was never entirely abandoned, and in the reign of George IV. a pistol was produced, called the 'Mariette,' which had from 4 to 24 small barrels bored in a solid mass of metal, made to revolve as the trigger was drawn back. At close quarters, such a pistol would doubtless have been useful; but its great weight and cumbrous mechanism rendered aim extremely unsteady.

Contemporaneously from the first with the revolving barrels went the formation of a revolving chamber or breech, pierced with several cylindrical apertures to receive the charges. Being made to revolve, each motion brought a chamber into line with the one barrel, common to all, whereupon the weapon was ready for discharge. Numerous patents for this principle have been taken out, including one by the renowned Marquis of Worcester 1661. Various improvements were made, especially in the mode of causing revolution; an Amer-

REVOLVER.

ican, Elisha H. Collier, patenting such a weapon in the United States and England about 1818. In 1835 Col. Samuel Colt, of Hartford, after years of experiment,

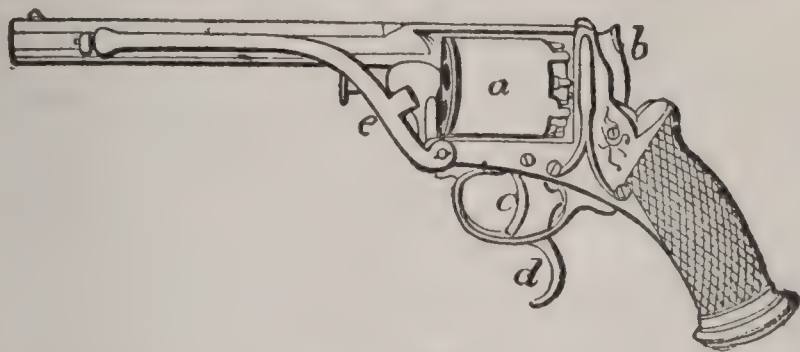


Fig. 1:

a, the chamber; **b**, hammer; **c**, trigger; **d**, spur for raising the hammer; **e**, lever-ramrod.

patented his world-renowned Colt's R., a great advance on all previous attempts, and substantially still in use. Colt's R. consists of one rifled barrel of considerable strength and a massive chamber perforated with six or seven barrels, which are brought successively into a line with the barrel by action of the trigger. Each chamber had its nipple for a cap, which is brought under the hammer by the same motion which brings the chamber or breech-piece round. In recent forms, the capped nipple disappears, the cap being contained within the cartridge. The hammer is discharged by the

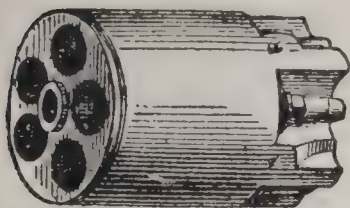


Fig. 2.—Chamber with Five Barrels.

trigger, and acts nearly horizontally in a forward direction. Under the pistol is a fixed lever-ramrod, used in loading the chambers. Besides all this, by withdrawing a bolt, which can be done in a moment, the entire breech-piece can be taken out, and replaced by another ready-charged, so that, by carrying a spare breech-piece, a person may fire 12 shots in less time than another could fire 3 if he had to load between the shots.

Colt's R. has been described because it was the earliest form that was entirely successful. Many ingenious modifications have been introduced, and choice can now be made among various styles of perhaps equal excellence.

The R. principle has been applied to a kind of revolving guns for small projectiles, which are really aggregates of small-arms: see GATLING GUN: MACHINE GUN. Of this kind of gun, the best known is the French *mitrailleuse* or *mitrailleux*, used during the Franco-German war—having usually 25 barrels. The range of such guns in a level plain is not great; but among fortifications, or in a narrow valley, they may be used with very deadly effect.

REVOMIT—REWARD.

REVOMIT, v. *rě-võm'it* [*re*, again, and *vomit*]: to vomit or pour forth again.

REVULSION, n. *rě-vũl'shũn* [F. *révulsion*, revulsion—from L. *revulsio*nem, a tearing off or away; *revulsus*, torn away—from *re*, back or again; *vellĕrĕ*, to pull]: the act of holding or drawing back; a violent separation; in *med.*, the act of turning or diverting a disease from one part of the body to another (see **DERIVATION: COUNTER-IRRITANT**). **REVUL'SIVE**, a. -*sĭv*, tending to cause revulsion: N. a medicine to cause a revulsion. **REVUL'SIVELY**, ad. -*lĭ*.

REWAH, *rā'wā*, or **BAGHEL**CUND: state in India, between the N.W. and the Central Provinces, subsidiary to the govt. of the latter, and having for its cap. the town of R., 70 m. s.w. from Allahabad, on the right bank of the Tons (pop. about 7,000). The town has remains of former magnificence, but even the walls and the rajah's palace are much decayed.—The state has 11,324 sq. m., and great part of it is well cultivated. Pop. (1881) 1,512,595.

REWARD, n. *rě-wawrd'* [*re*, again, and *award*: OF. *rewarder*; F. *regarder*, to regard]: a suitable return for kindness, merit, services, and the like; the fruits of labor or industry; a sum of money offered for the apprehension of a criminal, or for the recovery of lost property (see below): punishment: V. to recompense; to signify approval by a gift; to give in return, either good or evil; to remunerate; to requite; to punish; to repay evil. **REWARD'ING**, imp. **REWARD'ED**, pp. **REWARD'ER**, n. -*ér*, he who or that which rewards. **REWARD'ABLE**, a. -*a-bl*, that may be rewarded. **REWARD'ABLENESS**, n. -*bl-nĕs*, the state of being worthy of reward. **REWARD'LESS**, a. -*lĕs*, without a reward; having no reward.—**SYN.** of 'reward, n.': compensation; remuneration; pay; recompense; punishment; retribution; requital; satisfaction; guerdon.

REWARD', in Law: recompense awarded by authority of law for some act in the interest of the commonwealth; In particular for detection of crime: a R. may be offered either by public authority or by private persons (but see **COMPOUNDING OF FELONY**). A witness testifying in a criminal cause in hope of a R. is a competent witness. Courts will enforce the fulfilment of an offer of R.; but such offer may be revoked at pleasure. In the United States generally it is the state executive or the sheriffs of counties, or the supervisors or selectmen of towns, etc., that offer rewards on behalf of the public; and neither executive officers, courts, nor judges have authority to make compensation to citizens for their exertions in bringing offenders to punishment, except when there is a public offer of R.—In England the practice is different. By an English act of parliament of 1827, whenever it appears to a court of assize that a person has been active in apprehending offenders charged with murder, or with feloniously shooting, stabbing,

REWARDS—REYNARD THE FOX.

cutting, wounding, or poisoning, or with rape, burglary, housebreaking, robbery, arson, or cattle-stealing, or with receiving stolen goods, the court may order the sheriff of the county to pay to such person a sum of money, to compensate his expenses, exertions, and loss of time. So courts of quarter sessions may order a reward not exceeding £5. If any man happen to be killed while endeavoring to apprehend a criminal charged with any of these offenses, the court may also order a sum to be paid to the widow or child.

REWARDS FOR DISTINGUISHED MILITARY SERVICE: in England, annuities—commonly of £100 each—granted to meritorious officers in consideration of distinguished service.

REWORD, v. *rē-wérd'* [*re*, and *word*] : in *OE.*, to repeat in the same words.

REWRITE, v. *rē-rīt'* [*re*, again, and *write*] : to write a second time.

REX, n. *rěks* [L.] : a king.

REY'KIAVIK : see ICELAND.

REYNARD, n. *rěn'ârd* : another spelling of **RENARD**, a fox, which see.

REYN'ARD THE FOX : title of a celebrated epic fable of the middle ages, belonging to and terminating the series of poems in which 'beasts' are the speakers and actors. It is written in Low German, professedly by a Hinreck van Alckmer, 'schoolmaster and tutor of that noble virtuous Prince and Lord the Duke of Lorraine,' and was printed at Lübeck 1498, under the title *Reineke Vos* ; but German critics in general are disposed to believe that no such person as Hinreck van Alckmer ever existed—he is nowhere else mentioned in history—and that the real author is a Hermann Barkhusen, town-clerk and book-printer in Rostock, who, according to a common practice, sent his book into the world under a pseudonym. A Rostock edition appeared 1517, long believed the earliest, until the discovery of a copy—the only one known—of the older Lübeck ed. in the Wolfenbüttel Library by Prof. Hakemann, who published it 1711. Since then, the work has been repeatedly republished in Germany—the best ed. being that of Hoffmann von Fallersleben (Bresl. 1834, 2d ed. 1852), enriched with 'Introduction,' 'Notes,' and 'Glossary.'—Translations were early made from the Rostock ed. into High German, that of Mich. Beuther (Frankf. 1544) passing through more than 20 editions. The High-German translation was retranslated into Latin verse by Hartmann Schopper (Frankf. 1567), and thus found its way into other countries. Goethe translated the work into modern German hexameters with admirable spirit and freshness (Berl. 1794), and his translation has been charmingly illustrated by Kaulbach (Mun. 1847) : later translations are those by Soltau (Berl. 1803) and Simrock (Frankf. 1845–52), both executed in the measure of the original—rhymed

REYNARD THE FOX.

iambic couplets. There are Danish and Swedish translations.

An interesting question is—Was the work an original product of the author's fancy, or the final form assumed by a widespread fable? Till Jakob Grimm published the results of his laborious researches, everybody supposed that the poem printed at Lübeck 1498 was the earliest literary embodiment, if not the direct source, of the fable; but that opinion is no longer tenable. Grimm has shown that, in one form or another, the 'beast-fable' (Ger. *Thiersage*) goes back to the remotest antiquity, and is a common inheritance of the Aryan or Indo-Germanic races—Hindus, Celts, Greeks, Romans, Slaves, Esthonians, Germans—and even the Finns; and he explains with great clearness the conditions of thought, intellectual and religious, under which such a literary form is developed. But all nations did not attain equal success in its cultivation, and it was among the Germans, particularly the Franks, that it attained its most complete poetical elaboration. Grimm is inclined to deem the particular fable *Reineke Vos* of German rather than oriental origin, and that the Franks brought it with them to the Netherlands and to France, where (and not in Low-Germany) it first appeared. The Flemish and early French form of the story kept itself free of merely temporary phenomena, and gradually shaped itself into a style of pure epic satire, reflecting general human characteristics. Before the close of the 12th c., this purer and more epic form of the satire found its way into both German and Flemish literature: see Grimm's *Reinhart Fuchs* (Berlin 1834); and *Reinaert de Vos* (pub. by J. F. Willems, Ghent 1836–50, at expense of the Belgian govt.). How popular the fable became in France may be estimated from the fact that the German word *Reinhart* (old form, *Raginohart*—i.e., 'bold' or 'cunning in counsel'), which merely designates the character of the Fox, has entirely superseded the old Franco-Latin word *goupil* (from the Latin *vulpes*). The peculiarity of R. the F. consists in this, that it is the latest, best, and most complete of the whole series of poems about the Fox, gathering into itself, the merits of its predecessors, and presenting the whole in epic unity. The work now consulted by general readers is Goethe's version (excellent Eng. translation into heroic verse by T. J. Arnold, with illustrations by J. Wolf, Lond. 1855). For a critical appreciation of the fable, see Carlyle's 'Essay on German Literature of the Fourteenth and Fifteenth Centuries' (*Miscellaneous Essays*).

REYNOLDS.

REYNOLDS, rĕn'olz, JOHN FULTON: soldier: 1820, Sep. 20—1863, July 1; b. Lancaster, Penn. He graduated from West Point 1841, served under Gen. Taylor in the Mexican war, and was brevetted capt. and major for gallantry at Monterey and Buena Vista. After several years on the frontier, he was stationed at West Point 1859. In the civil war he led a brigade in the Peninsular campaign, was a prisoner 1862, June—Aug., and was then exchanged. At the second battle of Bull Run and in the Maryland campaign he commanded a division, and commanded the 1st corps at the battle of Fredericksburg. In the battle of Gettysburg, just as he had arranged his troops and was cheering them to the assault, he was killed by a rifle-ball. In his honor a bronze statue was erected by the 1st corps, and a granite shaft by the state of Penn., at Gettysburg; and a bronze equestrian statue of him has been placed in front of the city hall in Philadelphia. By various promotions he reached the rank of maj.gen. vols. 1862, Nov. 29. He was one of the most gallant, able, and popular officers of the army.

REYN'OLDS, JOSEPH JONES: soldier: b. Flemingsburg, Ky., 1822, Jan. 4. He graduated from West Point 1843, was with the U. S. troops in Texas 1845-6, was asst. prof. at West Point 1849-56, and resigned from the army in the latter year. He held a professorship in Washington Univ., St. Louis, till 1860. The following year he again entered the army, was promoted brig.gen. vols., participated in various engagements in the civil war, resigned 1862, Jan., but organized volunteers in Ind., and was commissioned col. the following Aug., and brig.gen. in Sep. He served in the Army of the Cumberland, was promoted maj.gen. vols., was in the battles of Chickamauga and Chattanooga, commanded the defenses of New Orleans during the first part of 1864, and had charge of the dept. of Arkansas 1864-66. In 1866, July, he was again appointed col. in the army, and in Sep. was mustered out of the volunteer service. He was in charge of the 5th milit. dist. 1867-72, was elected to the U. S. senate from Texas 1871, but declined to serve, and was in command of the dept. of the Platte 1872-76. He was brevetted brig.gen. and maj.gen. U. S. army for brilliant service at Chickamauga and Mission Ridge, and was retired 1877, June.

REYN'OLDS, Sir JOSHUA, P.R.A.: generally acknowledged as head of the English school of painting: 1723, July 16—1792, Feb. 23; b. Plympton Earl, Devonshire, England; son of the Rev. Samuel R., rector of Plympton, St. Mary, and master of the grammar school of Plympton. The rector intended his son for the medical profession, but Joshua, having early shown an ardent desire to be a painter, was 1741 placed under Hudson, principal portrait-painter of the day. After two years with this artist, he commenced on his own account as portrait-painter at Plymouth Dock, now Devonport, and

met great encouragement. In 1746 he went to London, and established himself in St. Martin's Lane; but 1749 accepted Commodore Keppel's invitation to sail with him to the Mediterranean station, and, on arrival in Leghorn, proceeded to Rome. He spent three diligent years in Italy. On his return to London, 1752, Oct., his works attracted great attention, eclipsing everything done there since Van Dyck's time. When the Royal Acad. was instituted 1769, he was elected pres.; was knighted by George III., and on Ramsay's death, 1784, succeeded him as painter to the king. He died in his house in Leicester Square, and, after lying in state at the Royal Acad., was interred in the crypt of St. Paul's. Sir Joshua lived in friendly intercourse with Johnson, Burke, and the leading men of his period. His literary works consist of 15 Discourses delivered in the Royal Academy; three essays contributed to the *Idler*, at Dr. Johnson's request; notes to Mason's translation of Du Fresnoy's *Art of Painting*; a few notes for Dr. Johnson's ed. of Shakespeare; and notes of his tour through Flanders 1781. In his writings there is much valuable information on art, imparted in an admirable manner; but he has been charged with laying down in them various rules, and holding up the works of certain schools as models for the student, while he himself did not carry out these precepts in his practice as an artist; and from this an unfair inference has been drawn, that from love of gain he cultivated portrait-painting, the most lucrative branch of the profession, and recommended others to follow what is generally believed to be a more arduous but less remunerative path of art. This accusation is most unjust: perhaps no other artist has handed down in writing so many practically useful maxims and observations on art. His paintings are numerous, and bear a very high value. There are nearly 700 engravings from R.'s pictures; most of them admirably rendered in mezzotint.—Northcote's *Life of Sir Joshua Reynolds* (2 vols. 8vo, Lond. 1819); Cunningham's *Lives of British Painters, Sculptors, and Architects* (Lond. 1854, vol. i.)

RHABARBARATE, a. *ra-bâr'ba-rāt* [L. *rha barbārum*, rhubarb (see RHUBARB)]: tinctured with rhubarb. **RHABAR'BARIN**, or **RHABAR'BARINE**, n. *-ba-rĭn*, chrysophanic acid.

RHABDOLOGY, n. *răb-dōl'ō-jĭ* [Gr. *rhabdos*, a staff; *logos*, discourse]: the art of computing or numbering by means of Napier's *rods* or *bones*. **RHABDOLOGIC**, a. *răb-dō-lōj'ĭk*, pert. to rhabdology, or performed by it.

RHABDOMANCY, n. *răb-dō-măn'sĭ* [Gr. *rhabdos*, a rod; *manteia*, divination; *mantis*, a prophet]: divination by a rod or wand, generally of witch-hazel, to indicate where metals, minerals, or water may be found in the earth—a superstitious practice not yet altogether abandoned; called also *met'allos'copy* or *hydros'copy*: see **DIVINING-ROD**.

RHABDOPHORA—RHAMNACEÆ.

RHABDOPHORA, n. plu. *răb-dŏf'ŏ-ra* [Gr. *rhabdos*, a rod; *phoros*, bearing—from *pherō*, I bear]: a name for the Graptolites, because they commonly possess a chitinous rod or axis supporting the perisarc.

RHACHITIS, *ra-kī'tis*: see **RACHITIS** (under **RACHIS**)—but the former is the proper spelling.

RHADAMANTHUS, *rad-ă-măn'thūs*: mythical personage, son of Zeus and Europa, and brother of Minos (q.v.). He settled in Bœotia, where he married Alcmene. So great was his reputation during life for the exercise of justice, that after death he was appointed a judge in the under-world, with Minos and Æacus. His special function was to sit in judgment on the actions of all those who came to Hades from Asia.

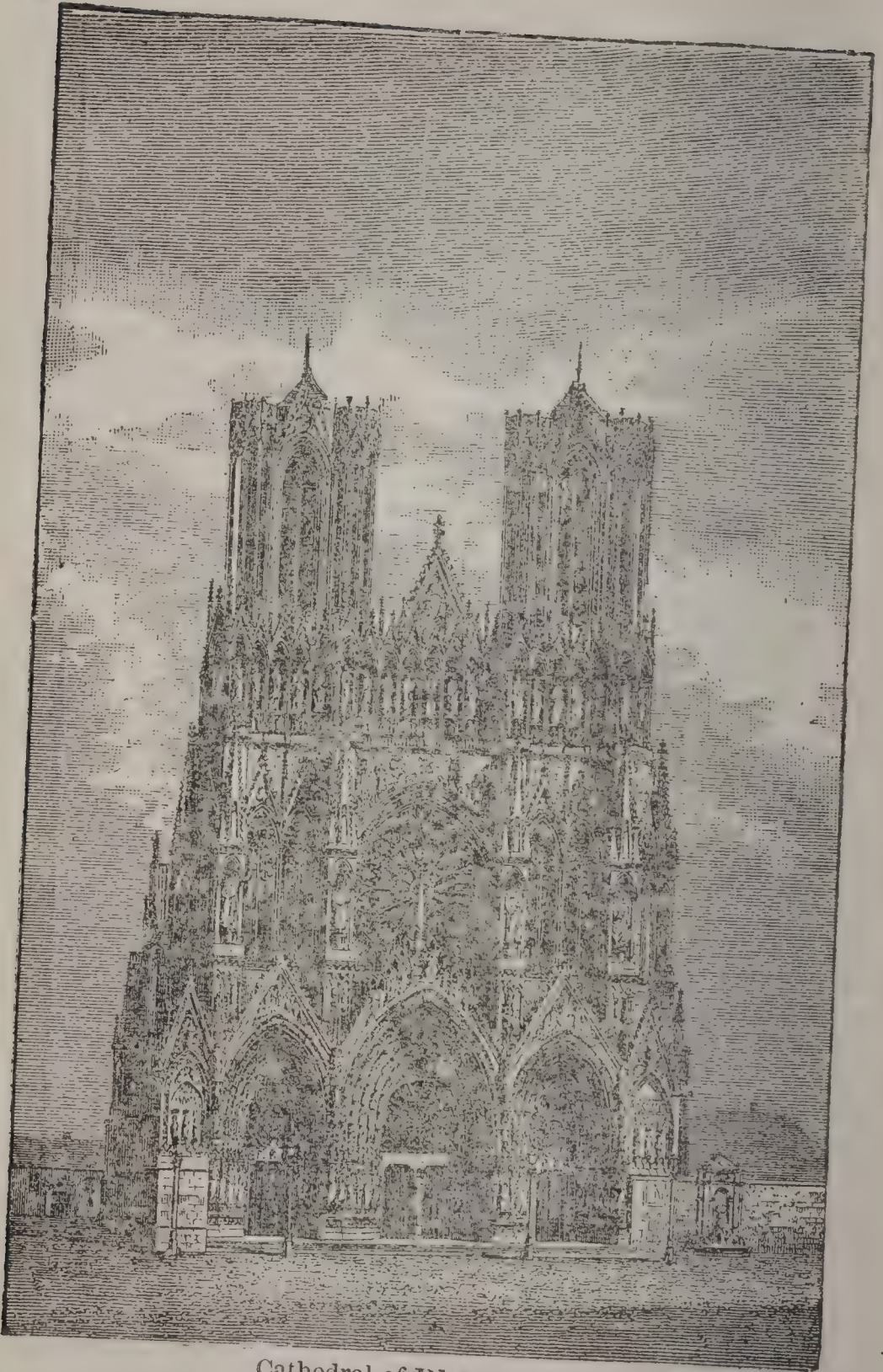
RHADAMANTINE, a. *răd-a-măn'tin*, or **RHADAMAN'THINE**, a. *-thīn* [*Rhadamanthus*, in *anc. myth.*, a son of Jupiter]: strictly just; severe as a judgment of Rhadamanthus, one of the three judges in the infernal regions.

RHÆTIA, *rě'shī-â*: ancient tribal district, comprising an extensive territory in the Alpine regions, separating the valleys of the Po and the Danube. It included the modern Swiss canton of the Grisons and the Austrian province of Tyrol, and at one time extended from Lakes Como and Garda to Lake Constance, and along the n. slope of the Alps to the Danube. The Rhætians were virtually independent until conquered by Augustus, with other Alpine tribes bordering on Italy, B.C. 15, when R. became a province of the Roman empire. Little is known of the origin or history of the Rhætians, but they are supposed to have been of Etruscan origin, and occupying at first the plains of the Po, but driven into the mountains by the Gauls, and at that time assumed their name from a leader Rhætus.

RHÆTIAN, a. *rě'shī-an*: pertaining to Rhætia.

RHÆTIC BEDS, *rĕ'lik bēdz*: in *geol.*, a term generally applied to the marine *passage-beds* which lie between the Trias and Lias, and which are so called from their extensive development in the *Rhætic* Alps—now grouped with the Trias.

RHAMNACEÆ, *răm-nă'sē-ē* [Gr. *rhamnos*, kind of thorn or prickly shrub]: natural order of exogenous plants, consisting of trees or shrubs; often spiny; with simple, generally alternate leaves, and stipules minute or lacking. The flowers are small, generally green. The calyx is 4-5 cleft; the petals distinct, hood-shaped, or convolute, inserted into the throat of the calyx, occasionally lacking. The stamens are equal in number to the petals, and opposite to them; the disk is fleshy; the ovary is superior, or half-superior, with two, three, or four cells; the ovules solitary. The fruit is fleshy, and does not open when ripe, or dry and separating into three parts. This order contains about 250 known species, natives of temperate and tropical countries, and generally distributed over the globe.



Cathedral of Rheims.

RHAMPHASTIDÆ—RHAMPSINITUS.

Some are used in dyeing (see BUCKTHORN: FRENCH BERRIES), some in medicine (see RED ROOT), and the fruit of some is pleasant (see JUJUBE); while *Hovenia dulcis*, native of China and Japan, is remarkable for the thickening of its flower-stalks after flowering, so as to form a succulent sweet red pulp, with flavor resembling that of a pear. RHAMNINE, n. *rām'nīn*, crystalline principle obtained from buckthorn-berries.



Rhamnus frangula.

RHAMPHASTIDÆ: see TOUCAN.

RHAMPSINITUS, *rāmp-sī-nī'tūs*: Greek name of the Egyptian monarch Rameses III., first king of the 20th dynasty, and builder of the great palace at Medinet-

Habu (see RAMESES). According to Herodotus, he placed two colossal statues 25 cubits high in front of the w. vestibule of the Hephæsteum at Memphis. He was the richest of Egyptian kings, having amassed 400,000 talents, or nearly \$375,000,000—an incredible sum for that period: this wealth was, however, probably in jewels as well as the precious metals, for both are recorded on the walls of the treasury of Medinet-Habu. To secure this enormous treasure, he built a treasury of stone, one side of which adjoined the wall of his palace. In connection with this is narrated a story which rather resembles the tale of Ali Baba in the *Arabian Nights* than the sober narrative of history. The story was told to Herodotus by the Egyptian dragomen of the days of the Father of History, who naïvely doubts its veracity; but notwithstanding some of the German researches, which attempt to connect it with Hellenic myths of the brothers Agamedes and Trophonios, it is believed to be essentially Egyptian. R. is said to have descended to Hades, and to have played at draughts with Isis, or Ceres, and he is so represented on the walls of his palace at Medinet-Habu. His return was celebrated as a festival. Herodotus, who has inverted and confused the whole history of Egypt, calls R. son of Proteus and predecessor of Cheops, placing him 16 dynasties earlier than he should be. According to Lepsius, he reigned about B.C. 1275. According to Diodorus, R. was called Remphis, or rather Rempsis (Ramses), and by Pliny Ramses, in whose reign Troy was taken.

Pliny, *Hist. Nat.*, xxxvi. 8, 14, 2; Herodotus, ii. 121-124; Diodorus, i. 62; Champollion, *Not. Descr.*; Burton, *Exa. Hier.*; Sir G. Wilkinson, *Manners and Customs*, i. 121, etc.; Lepsius, *Einleit.*, 299, etc.

RHAPONTICINE—RHEA.

RHAPONTICINE, n. *ra-pŏn'tī-sĭn* [L. *rhaponticum*, rhubarb]: the yellow substance which water extracts from rhubarb.

RHAP'SODISTS, in Ancient Greece: a class of persons who earned their bread by going about from place to place, reciting, in a sort of musical chant, the epic ballads of Homer and other ancient poets. They were like the wandering minstrels of the middle ages, except that the latter were generally the authors of the compositions which they sung. The R. were long a respected and venerated body, but lost their importance, and consequently their character, when the Homeric songs, after being written down, and perhaps woven together into their present form, by the scholars at the court of Peisistratos, became generally known to the Greek world through the medium of manuscript copies. Each ballad, or at least as much as could conveniently be remembered and recited at one time, was termed a 'rhapsody,' whence the application of the term to the separate books of the *Iliad* and *Odyssey*, in which usage it is equivalent to the *Fytte* or *Canto* of Scott and Byron.

RHAPSODY, n. *răp'sō-dī* [Gr. *rhapsōdiā*, a term applied by the Greeks to a book of the *Iliad* or *Odyssey*, the chanting of poems; *rhapsōdos*, a bard—from *rhapto*, I stitch together; *ōdē*, a poem or song]: a confused jumble of words or sentences without dependence or natural connection; any rambling composition. **RHAP'SODIST**, n. *-dist*, one who speaks or writes in an unconnected way: specially in anc. Greece (see RHAPSODISTS). **RHAPSODICAL**, a. *răp-sŏd'ī-kal*, or **RHAPSOD'IC**, a. *-īk*, consisting of rhapsody; unconnected; rambling. **RHAPSOD'ICALLY**, ad. *-kāl-ly*. **RHAPSODIZE**, v. *răp'sō-dīz*, to write or utter rhapsodies. **RHAP'SODIZING**, imp. **RHAPSODIZED**, pp. *-dīzd*. **RHAP'SODOMAN'CY**, n. *-măn'sī* [Gr. *manteia*, divination]: divination by means of verses.

RHAT'ANY ROOT: see **RATANY**.

RHEA, n. *rē'a*: a large running bird—the ostrich of S. America: see **NANDU**.

RHEA, n. *rē'a*: in *Gr. myth.*, daughter of Uranus and Ge, wife of Saturn, and mother of Vesta, Ceres, Juno, Pluto, etc.

RHEA, or **RHEEA**, a. n. *rē'a*: species of nettle of tropical and semi-tropical countries, whose stalks contain an excellent spinning fibre, the outer skin being employed in paper-making.—*Rhea fibre* is a valuable fibrous material supplied by several species of plants of the nettle tribe formerly included in the genus *Urtica*, now known as *Bœhmeria* (q.v.). The plants by which it is produced are indigenous in various Asiatic regions, and some species are largely grown in India, China, and Japan. The Chinese make their famous 'grasscloth' from the fibre of *B. nivea*; *B. tenacissima* is much grown in the East, and has been introduced into the Western world, and other species are cultivated to some extent. The

RHEGIUM JULII—RHEIMS.

fibre is remarkably strong and beautiful. It was sold in England first in 1810, and is now largely used in manufacture there and in France. The difficulty of preparing it for use has been the only bar to its production in immense quantities, and this is likely to be removed by recently invented machines and processes. See RAMIE.

RHE'GIUM JU'LII: see REGGIO (in prov. of Reggio, s. Italy).

RHEIMS, or REIMS, *rēmz*: city and archiepiscopal see, dept. of Marne, France; on the Vesle (tributary of the Aisne), 107 m. e.n.e. of Paris, by the Paris and Strasbourg railway. This very ancient city, is built on the site of *Durocortorum*, mentioned by Julius Cæsar (*De Bello Gallico*, vi. 44) as cap. of the Remi, from which people it subsequently took its present name. Christianity may have found entrance into R. at an earlier period, but not till the middle of the 4th c. did R. become a bishop's see. Under the Frank rule it was an important place, and it acquired religious interest as the scene of the baptism of Clovis and his chief officers by the bp., Saint Remy, 496. In the 8th c., it became an archbishopric, and from 1179, in which year Philip Augustus was there solemnly crowned, it became the place for the coronation of the kings of France, till the time of Charles X.—a vessel of sacred oil, called *la Sainte Ampoule*, to which a miraculous origin was ascribed, being preserved for the purpose. The only sovereigns in the long series, to the revolution of 1830, not crowned at R. were Henry IV., Napoleon I., and Louis XVIII. During the frenzy of the Revolution, the cathedral was attacked by the populace, and the sainte ampoule destroyed, in detestation of royalty; and in 1830, the ceremony of the coronation at R. was abolished. R. is one of the principal entrepôts for the wines of Champagne, and the hills which surround the town are planted with vineyards. It is one of the great centres of French woolen manufacture, and its woolen goods, mixed fabrics in silk and wool, merinoes, etc., are known in commerce as *Articles de Reims*. The town is well built, and is picturesque from the material employed in building—the chalk-stone of the district—and from the prevalence of the older style of domestic architecture. Its most striking public building is the cathedral, which, though still lacking the towers of the original design, is one of the finest extant specimens of Gothic architecture. It was built in the first half of the 13th c. Its nave is 466 ft. long by 99 in breadth, with a transept of 160 ft., and the height is 144 ft. Its grandest features are the w. front, which is almost unrivalled, and the Angel Tower, which rises 59 ft. above the lofty roof. The stained glass is remarkable for beauty; the baptismal fonts are of exquisite workmanship, and the organ is reputed one of the finest in France. The church of St. Remy is of greater age, and

RHEINGAU—RHENISH ARCHITECTURE.

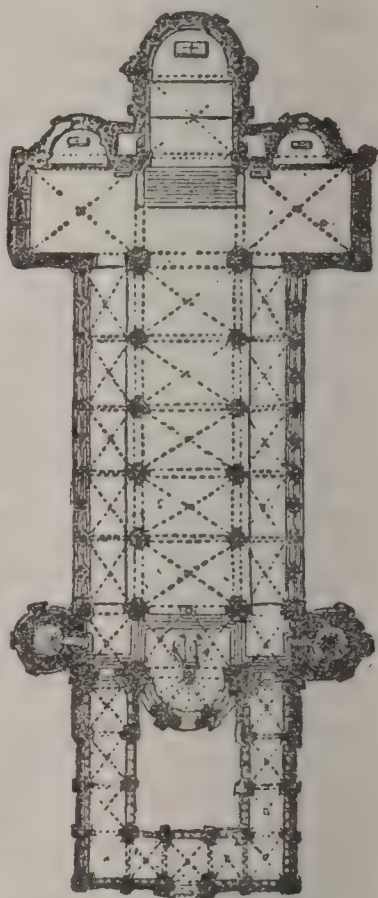
nearly of equal size, but of less architectural pretension. The archiepiscopal province of **R.** comprises the sees of Soissons, Chalons, Beauvais, and Amiens. Pop. (1881) 93,683; (1891) 104,186; (1901) 108,385.

RHEINGAU, *rīn'gow*: district along the right bank of the Rhine, formerly belonging to the archbishopric of Mainz, now forming the administrative dist. of Wiesbaden, in the Prussian province of Hessen-Nassau. **R.** is about 12 m. long, 6 broad. This district, one of the richest in Germany, protected by mountains from the n. and e. winds, and exposed to the mid-day sun, produces wines of the best quality.

RHEIN-HESSE: see **HESSE-DARMSTADT**.

RHENISH, a. *rēn'ish*: pert. to the river *Rhine*: **N.** wine from the vineyards in the districts of the Rhine: see **RHINE-WINE**.

RHENISH ARCHITECTURE: architectural style of the countries bordering on the Rhine when the arts first revived after the fall of the Roman empire. Being, at the time of Charlemagne, part of the same empire with Lombardy, the arts of that country (see **LOMBARD ARCHITECTURE**) soon spread northward, and similar buildings sprang up n. of the Alps. There are almost no traces of architecture in Germany before the time of Charlemagne. It received great encouragement from him and his successors, and the Rhenish style made great progress up till the beginning of the 13th c., when the fashion of copying the Gothic architecture of France superseded it. It is, however, a well-marked style, and is complete and perfect in itself. Like the Lombard style, it is round-arched, and has some remarkable peculiarities. The earliest churches seem to have been circular (like the Dom at Aix-la-Chapelle, built by Charlemagne); later the circular church was absorbed into the Basilica, or rectangular church (see **ROMANESQUE ARCHITECTURE**), in the form of a *western* apse. Most German churches thus have *two apses*—an eastern and a western. They also have a number of small circular or octagonal towers, which seem similar in origin to the Round Towers of Ireland. They exemplify in a remarkable manner the arrangements of an ancient plan of the 9th c., found in the monastery of St.



Plan of Church at
Laach.

RHENISH ARCHITECTURE.

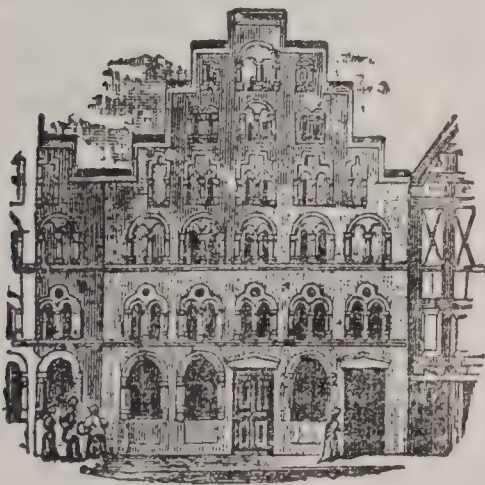
Gall, and supposed to have been sent to the abbot, as a design for a perfect monastery, to aid him in carrying out his new buildings. The arcaded galleries at the



Elevation of Church at Laach.

eaves, and the richly carved capitals, are among the most beautiful features of the style. Examples are very numerous from about A D. 1000 to 1200. The three

great types of the style are the cathedrals of Mainz, Worms, and Speyer. The last is a magnificent building, 435 ft. long by 125 ft. wide, with a nave 45 ft. wide and 105 ft. high. It is grand and simple, and one of the most impressive buildings in existence. There are also numerous fine examples of the style at Cologne—the Apostles' Church, Sta Maria in Capitulo, and St. Martin's, being among the best examples of Rhenish architecture. In the church at



Rhenish Architecture (secular).

Laach (see fig.) the vaults being small, the different spans were managed (though with round arches) by stiling the springing; but in great buildings like Speyer and Worms, the vaults are necessarily square in plan, in

RHENISH PRUSSIA.

this round-arched style, and the nave embraces in each of its bays two arches of the side aisles—a method followed also by the early Gothic architects. From the use of the round arch and solid walls, the exteriors are free from the great mass of buttresses used in Gothic buildings, and the real forms are distinctly seen.

RHENISH CONFEDERATION : see **CONFEDERATION OF THE RHINE**.

RHENISH PRUSSIA, *rěň'ish prűsh'ya* or *pró'shĭ-a* (Ger. *Rheinprovinz*, or *Rheinpreussen*) : most western and most thickly peopled of the provinces of Prussia ; along the banks of the Rhine ; bounded w. by Belgium and the Netherlands ; 10,400 sq. m. In the south, the surface is mountainous, the principal ranges being the Hunsrück, the Eifelgebirge, and branches of the Westerwald. The largest river is the Rhine, which flows n.n.w. through the province for 200 m., and receives many affluents. The surface is mountainous, except in the extreme n., and the soil of the higher mountain-tracts barely supports the inhabitants ; while that of the valleys of the Rhine, Moselle, and Nahe are very fruitful, and the flat districts in the n. are most productive in grain. Timber and minerals, including lead, copper, zinc, coal, etc., abound ; and the warm and hot sulphur-springs of Aix (q.v.) and Burtscheid (q.v.) have European reputation. Industry and manufactures are prosecuted with the utmost energy, and with great success. The cotton manufactures of the Wupperthal, the silk manufactures of Krefeld and vicinity, and the woolen cloth and cashmere manufactures of the dist. of Aix, are famous. R. P. came into the possession of Prussia by the treaty of Vienna 1815. It comprises the former duchies of Cleves, Gelders, and Berg, the principalities of Mörs and Lichtenberg, the n. and middle parts of the former archbishopric of Cologne, numerous lordships, portions from the four French depts. of Rhein-Mosel, Mosel des Forêts, and Saar, etc. Pop. (1890) 4,710,313 ; of whom about 3,400,000 were Rom. Catholics, half-a-million of Flemish blood, and 10,000 Walloons ; (1900) 5,759,798.

RHEOMETER—RHESUS MONKEY.

RHEOMETER, n. *rē-ōm'ē-tēr* [Gr. *rhēōs*, a current—from *rhēin*, to flow; *metron*, a measure]: an instrument for measuring the intensity of a galvanic current. **RHEOM'ETRY**, n. *-ē-trī*, the method of determining the force of galvanic currents. **RHEOMOTOR**, n. *rē'ō-mō'tōr* [L. *mōtor*, a mover—from *movēō*, I move]: the apparatus by which an electrical or galvanic current is originated. **RHEOCHORD**, n. *rē'o-kawrd* [prefix *rheo-*; Eng. *chord*]: an instrument, consisting of two platinum wires, used in measuring electro-magnetic resistances. **RHE'O-PHORE**, n. *-fōr* [Gr. *phorēō*, I bear along]: Ampère's term for the connecting-wire of an electric or voltaic apparatus. **RHE'OSCOPE**, n. *-skōp* [Gr. *skopēō*, I view]: an apparatus for ascertaining the pressure of a galvanic current, or merely its existence. **RHE'OSTAT**, n. *-stāt* [Gr. *statos*, that stands]: an apparatus for enabling a galvanic needle to be kept at the same point during an experiment; an instr. for measuring electrical resistance. **RHE'OTOME**, n. *-tōm* [Gr. *tomē*, a cutting]: an instr. for periodically interrupting an electric current. **RHE'OTROPE**, n. *-trōp* [Gr. *tropē*, a turn]: an instr. for reversing the direction of a voltaic current.

RHESUS MONKEY, *rē'sūs mūng'kī* (*Macacus Rhesus*): East Indian monkey, extending further n. than any other species except the Entellus (q.v.), or Hanuman (q.v.), and, like it, partially migratory, visiting regions of the Himalaya in summer, which are far too cold for it in winter.



Rhesus Monkey (*Macacus Rhesus*).

It is held in almost as great veneration by the natives of India as the Hanuman itself; and the killing of one of these animals is apt to arouse the greatest popular indignation. The monkeys live in troops in the forests, chiefly in hilly districts, and visit the cultivated grounds to carry away grain and other produce, which they store up for themselves among rocks. The native farmers leave a share for the monkeys, believing this to be necessary for the averting of their anger; as otherwise, next year they would destroy the whole crop while green. The R. M. has stout form, stout limbs, short ears, short tail, large callosities, skin hanging loose about the

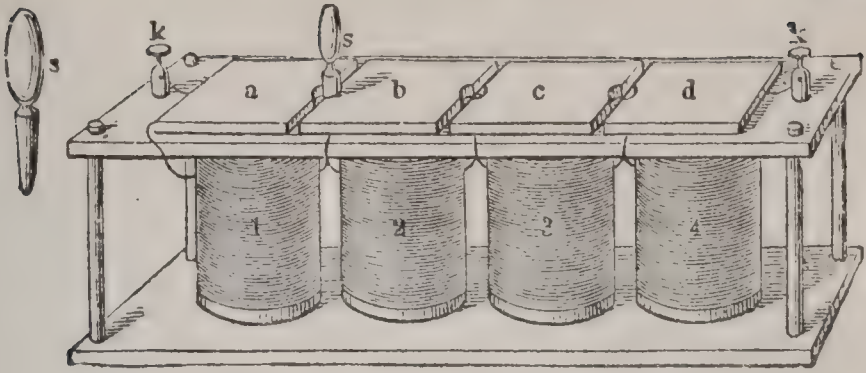
RHETORIC--RHEUM.

throat and belly, hair rather long, back brownish, lower part of the back and the haunches bright chestnut, or almost orange, shoulders and arms lighter. It is one of the most intelligent and mischievous of monkeys.

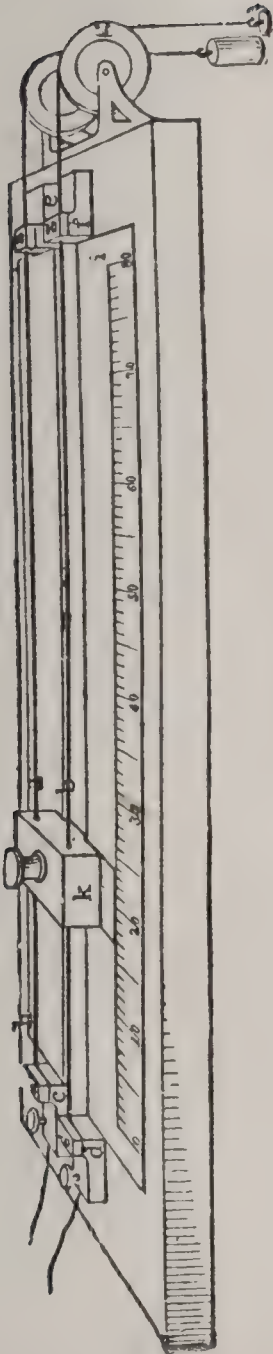
RHETORIC, n. *rěť'ō-rĭk* [F. *rhétorique*, rhetoric—from L. *rhētōrĭcā*; Gr. *rhētōr'ikē*, oratory—from *rhētōr*, an orator; *rheō*, I say, I speak]: science of oratory; art of composition written or spoken; art of speaking in public with propriety, elegance, and force; power of persuasion and attraction in speech: in its broadest sense the theory of eloquence. It aims at expounding the rules which should govern all prose composition or speech designed to influence the judgments or the feelings of men; therefore treats of everything that relates to beauty or force of style—e.g., accuracy of expression, structure of periods, and figures of speech. But in a narrower sense R. concerns the fundamental principles according to which particular discourses of an oratorical kind are composed. The three chief elements of an oration are usually held to be—*inventio*, or discovery of proper ideas; *dispositio*, or their arrangement; and *elocutio*, or the style in which they are expressed. The ancients, however, who cultivated oral eloquence more than the moderns do, reckoned other two—viz., *memoria*, or memory, and *actio*, or gesticulation. The most distinguished writers on rhetoric in ancient times were Aristotle, Cicero, and Quintilian; in modern times, Blair, Campbell, Whately, and Spalding among the English; Erneste Maass, Schott, Richter, and Falkmann among the Germans; and among the French, Rollin, Gibert, Le Batteux, La Harpe, Marmontel, and Andrieux. **RHETORICAL**, a. *rě-tōr'ĭ-kāl*, pert. to rhetoric; persuasive; figurative. **RHETOR'ICALLY**, ad. *-lĭ*. **RHETORICIAN**, n. *rěť'ō-rĭsh'ăn*, one skilled in the art of rhetoric, or an instructor in it.

RHEUM, n. *rě'ŭm* [Gr. *rhēōn*, rhubarb—from *Rha*, old name of the river Volga, in Russia, from which first brought]: in *bot.*, the systematic name of rhubarb.

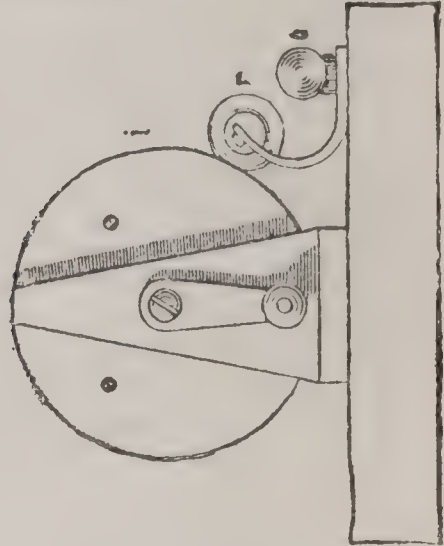
RHEUM, n. *rôm* [Gr. *rheuma*, that which flows—from *rhēō*, I flow: F. *rhume*]: the increased action of the vessels of any organ of the body producing a flow of humors; usually applied to the increased secretions of the mucous glands caused by a cold. **RHEUM'Y**, a. *-ĭ*, pert. to or abounding in rheum; affected with rheum.



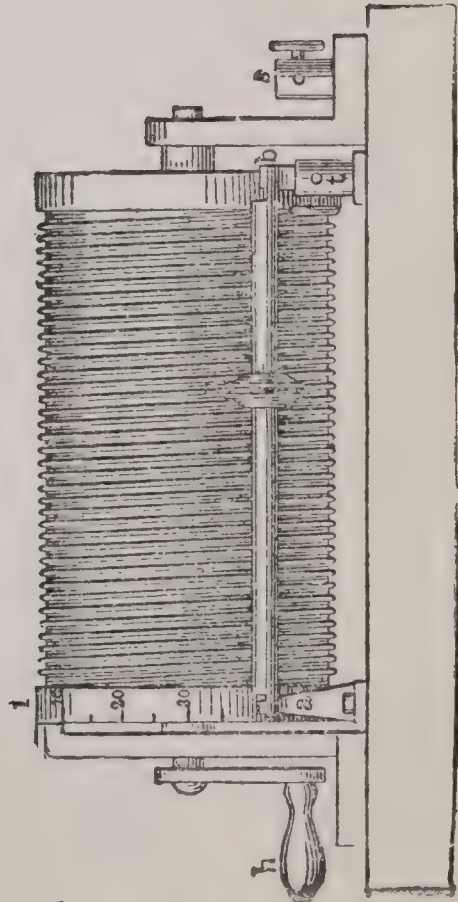
Siemens' Rheostat.



Rheochord.



End view.



Side view.

Wheatstone's Rheostat.

RHEUMATISM.

RHEUMATISM, n. *rō'mā-tizm* [L. *rheumatis'mus*; Gr. *rheumatis'mos*, rheum, catarrh—from Gr. *rheuma*, a watery fluid—from *rhēō*, I flow: It. *reumatismo*; F. *rhumatisme*]: painful disease affecting the muscles and joints, causing swelling and stiffness. **RHEUMATIC**, a. *rō-mā'tik*, or **RHEUMAT'ICAL**, a. *-ī-kāl*, pertaining to or affected with rheumatism. **RHEU'MATOID**, a. *-toyd* [Gr. *eidos*, resemblance]: having the appearance of rheumatism.—*Rheumatism* is a blood-disease in which inflammation of the fibrous tissues is the marked characteristic. It occurs either as acute or as chronic; but there is no distinct demarkation, and the chronic is often a consequence of the acute.

Acute R. (acute articular R.) is indicated by general febrile symptoms, redness, heat, swelling, and usually intense pain, in and around one or more (generally several, either simultaneously or in succession) of the larger joints; and the disease shows a tendency to shift from joint to joint or to certain internal fibrous membranes, especially the pericardium; R. being the most common origin of Pericarditis (q.v.). The pulse is strong and full, there is headache, but seldom delirium, unless the heart is affected; the tongue is covered with creamy thick fur, the tip and edges being red; the urine is turbid, and abnormally acid; and the skin is bathed in copious perspiration, with so characteristic a smell (resembling that of sour-milk), that the physician can often recognize the disease almost before he sees the patient. The joints are extremely painful, and the pain is much increased by pressure, and consequently by movement which gives rise to internal pressure. Hence the patient lies fixed in one position, from which he dares not stir. There are two varieties of acute R. In one, the inflammation commences not *in* the joint, but *near* it, and attacks the tendons, fasciæ, ligaments, and possibly the muscles themselves. This form is termed *fibrous* or *diffused* rheumatism. In the other variety, the synovial membrane in the joint becomes affected, and an excess of fluid is poured into the joint, distending the membrane, and making it bulge out between the spaces intervening between the various tendons, ligaments, etc., round the joint. The knee-joint is most frequently affected in this way, and fluctuation may readily be perceived on applying the hands to the two sides of the knee. In this form, called *synovial* rheumatism, the swelling and redness come on sooner, and are more marked than in the former variety. The fibrous is by far the most severe form, and to it chiefly the previous sketch of the most marked symptoms applies. In the synovial form, the fever is less intense, the tongue less foul, the perspiration far less profuse, and the membranes of the heart are much less liable to be attacked. It is to this form that the term *rheumatic gout* is often applied, and it is by no means inappropriate, because synovial R. forms (as Dr Watson has observed) a connecting link between gout and R., and partakes of the characters of both.

The only known exciting cause of acute R. is exposure to cold, and especially to cold combined with moisture;

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hence the greater prevalence of this disease among the poor and ill-clad. Sleeping in damp sheets or on the damp ground, the wearing of wet clothes, and sitting in a cold damp room, especially if the sitter was previously warm from exercise, are examples of the kind of exposure liable to be followed by R. The excreting power of the skin being checked by the action of cold, certain effete matters which should be eliminated in the form of perspiration, are retained, and accumulate in the blood, which thus becomes poisoned. This blood-poisoning is not, however, a universal sequence to exposure to the cold: it occurs only when there is special predisposition to this disease, or, as it is termed, a rheumatic diathesis or constitution, and the diathesis may be so strongly developed as to occasion an attack of acute R., independently of exposure to any apparent exciting cause. Men are more subject to the disease than women, probably from their greater exposure to atmospheric changes by reason of their occupations. The predisposition is certainly affected by age; children under ten years, and adults over 60, being seldom attacked, while the disease is most prevalent between the age of 15 and 40. Persons once affected become more liable to it than they previously were. Dr. Fuller believes, from his observations in St. George's Hospital, that the disease is sometimes hereditary; whether this be the case or not, there can be no doubt that the predisposition is very apt to exist in members of the same family. The exact nature of the poison is unknown. The late Dr. Prout regarded lactic acid as the actual *materies morbi*, and certain experiments by Dr. Richardson tend to confirm this view. Recently a bacterial origin of acute R. is conjectured with increasing probability.

The danger in acute R. arises almost entirely from the disease going from the joints to the heart, and setting up Pericarditis (q.v.). Hence that treatment is best which tends most surely to prevent, or, at all events, to lessen the risk of this complication. The treatment should be left to professional skill: it suffices here only to indicate some of the different lines adopted. At the beginning of the disease purging is advocated by some; calomel every night, followed in the morning, for three or four days, by an ordinary strong cathartic will sometimes dislodge an enormous amount of dark and foul secretions from the liver and bowels, and give marked relief. Opium (or morphia) is one of the most valuable remedies in this disease, from its power of allaying pain and procuring sleep: some practitioners trust to opium alone for the cure. It may be given with ipecacuanha (as in Dover's Powder), or with doses of an aperient; taken alone, it would aggravate that lethargy of the excretory organs which has much to do with the rheumatic condition. Colchicum sometimes has marvellous effect in subduing the disease; but it must be given with extreme caution in view of the prostration to which an over-dose gives rise: see POISONS. Some writers consider this remedy of most value when synovial symptoms are present, i.e., when the R. approaches gout. The

RHEUMATISM.

abnormal acidity of the various fluids (the sweat, urine, even the saliva) in acute R. has led to the belief that alkaline remedies would both neutralize the poison, and, from their diuretic properties, tend to eliminate it. The bicarbonate of potash in solution has been largely tried in average doses of two scruples every two hours, by night and day, for several days together. Of 51 cases so treated, the average period of treatment was between six and seven days, and the average duration of the disease was slightly under a fortnight. The medicine soon rendered the urine alkaline, but did not irritate either the bladder or the intestines. It seemed rapidly to calm the pulse and to allay the febrile heat; and in no case did any heart-complication arise after the patient had been 48 hours under its influence. Some physicians prefer the acetate of potash. The mode of treatment by lemon-juice in doses of one or two ounces five or six times a day, originally advocated by Dr. G. O. Rees, at first seems in direct antagonism to the alkaline mode of treatment. As, however, the most active principle in the lemon-juice is citrate of potash, which, before it reaches the kidneys, becomes converted into carbonate of potash, there is less essential difference between the acid and the alkaline mode of treatment than at first appears. It is said by some authorities that the system is in some cases in an alkaline condition, in others acid; hence the treatment that might result in improvement in one case, would fail in another. Some years ago a new treatment was warmly advocated by Dr. Davies of the London Hospital—mainly the application of a series of blisters to the parts around the affected joints. One of the high authorities on this disease, Dr. Fuller of St. George's Hospital, London, after trying various hot external applications, finds that a mixed alkaline and opiate solution is far more powerful than any other in allaying acute rheumatic pain. The solution usually applied by him is made by dissolving half an ounce (or rather more) of carbonate of potash or soda in nine ounces of hot water, and adding six fluid drachms of Battley's *Liquor opii sedativus*. Thin flannel, soaked in this hot lotion, is applied to the affected joints, and the whole is wrapped in a covering of thin gutta-percha.

Cases intermediate between acute and chronic R. are frequent. In what may be termed *subacute* rheumatism, there is slight fever, and several joints are usually affected, without intense inflammation in any one joint. These cases soon show signs of amendment under mild alkaline treatment, e.g., a drachm of liquor potassæ daily, well diluted and divided into three or four doses, and moderate use of purgatives.

In all cases of acute and subacute R. the heart-sounds should be examined daily, or even oftener, to detect the earliest sign of cardiac affection, and, if possible, to check it. For the treatment when the membranes of the heart are affected, see PERICARDITIS.

There are two kinds of *chronic rheumatism*, sufficiently distinct to require notice. In one there is considerable

RHEUMATISM.

local heat and swelling, though unaccompanied with corresponding constitutional disturbance: in the other the patient complains of coldness (rather than heat) and stiffness of the affected joints. The former approximates most closely to the previously described forms of R., of which it is frequently the sequel, and must be treated in like manner; while the latter, termed by some the *passive* form, occurs usually as an independent affection. In passive R., the pain is relieved by friction, and the patients are most comfortable when warm in bed—conditions which increase the pain in the former variety. Patients of this kind derive benefit from living in a warm climate, from warm clothing, warm bathing, especially in salt water at a temperature of not less than 100°, the hot-air bath, etc. Friction with some stimulating liniment, and some modes of manipulation are of service; and among the internal remedies, turpentine, cod-liver oil, sulphur, guaiacum, sarsaparilla, and Dover's Powder have good reputation. One high authority recommends muriate of ammonia as a remedy of 'singular efficacy;' but of all remedies for this affection the most efficacious is doubtless the iodide of potassium, in five-grain doses, combined with a few grains of carbonate of ammonia three times daily. A patient liable to attacks of chronic R. should always wear flannel next the skin during the day, and at night he should sleep between the blankets, discarding linen or cotton sheets.

RHEUMATIC DISEASES in the lower animals are less frequent than with men. Horses are not very liable to acute R., but suffer from a chronic variety, specially in conjunction with influenza. When affecting the limbs, it often shows its characteristic tendency to shift from one part to another. In cattle and sheep, rheumatic disorders are more common and acute than in horses. The specific inflammation sometimes involves most of the fibrous and fibro-serous textures throughout the body, inducing general stiffness, constipated bowels, and high fever. This is rheumatic fever—the chine-felon or body-garget of the old farriers. Sometimes the disease affects mainly the larger joints, causing intense pain, lameness, and hard swellings; occasionally it is confined to the feet and fetlocks, when it is recognized as bustian-foul. Cattle and sheep on bleak exposed pastures, and cows turned out of the dairy to feed on strong alluvial grazings, are especially subject to R. In dogs, R. is known as kennel lameness, and is very troublesome and intractable in low, damp, cold situations. Blood-letting is rarely admissible except in the most acute cases among cattle. In all animals, a laxative should at once be given, with some saline matters and colchicum, and when the pain and fever are great, a little tincture of aconite may be added. For cattle, a good combination consists of one ounce of nitre, two drachms of powdered colchicum, and two fluid drachms of the Pharmacopœia tincture of aconite, repeated in water or gruel every three hours: half this dose will suffice for horses. With a simple laxative diet, dogs should have a pill night and morning containing five grains of nitre and two of

RHEYDT—RHIN.

colchicum. Comfortable lodgings, a warm bed, horse-rugs on the body, and bandages on the legs, will greatly expedite a cure. In chronic cases, or after the more acute symptoms are subdued, an ounce of oil of turpentine, and two drachms each of nitre and powdered colchicum, should be given for a cow, half that quantity for a horse, and one-fourth for a sheep. Hartshorn and oil, or other stimulating embrocations, diligently and frequently rubbed in, will often abate the pain and swelling of the affected joints.

RHEYDT, *rīt*: town of Rhenish Prussia, on the left bank of the Niers, and on the railway between Düsseldorf and Aix-la-Chapelle, 14 m. w. by s. from Düsseldorf. It has manufactures of silks and velvets, soap, glue, vinegar, and leather; also dyeworks, and some trade in linen. Pop. (1880) 19,087; (1890) 26,962; (1895) 30,099.

RHIGOLENE, n. *rīg'o-lēn* [Gr. *rhigos*, frost, cold; L. *oleum*, oil]: a petroleum naphtha, introduced by Dr. H. J. Bigelow, of Boston, as a local anæsthetic. It is applied in the form of spray in minor operations, producing intense cold by its evaporation.

RHIME: see **RIME**.

RHIN, **BAS**, *bâ-răng* (**LOWER RHINE**): formerly a frontier dept. of France, but now corresponding nearly to the German administrative dist. of Lower Alsace (*Nieder-Elsass*) in the imperial territory of Alsace-Lorraine: to the e. lies Baden, and w. are the French depts. Moselle, Meurthe, and Vosges. The area of Bas-Rhin, as a dept. of France, was 1,759 sq. m.; pop. (1866) 609,987; area of Lower Alsace 1841 sq. m.; pop. (1900) 659,432. This dist. lies almost wholly within the basin of the Rhine, which flows n. along its e. border. The e. portion of the dist., along the left bank of the Rhine, consists wholly of plains; while in the w. are the rugged and wooded heights which form the e. slopes of the Vosges Mountains. In the hilly regions are many beautiful valleys. The winters are long and cold; summers variable; autumns always fine. Cretinism and goitre prevail in some parts, though less now than formerly. The country is unusually rich in agricultural and manufacturing resources and capabilities. A great variety of grains, fruits, and vegetables, including fine crops of hemp and tobacco, are grown extensively; and wines, red and white, the latter held in highest estimation, are produced abundantly. Manufactures, textile and other, are carried on on a grand scale. Spinning-mills, weaving factories for cotton, calico, woolen, and other fabrics, are exceedingly numerous, and foundries, arms and machine factories abound. Some timber, floated down the Rhine in rafts, is exported. The region recently occupied by the French depts. Haut-Rhin and Bas-Rhin constituted, prior to the treaty of Ryswick 1697, one of the most densely peopled and industrious portions of Germany, called in German, *Elsass* (Latin *Alsatia*). Ceded then to France, it became the French province of Alsace, which was at the Revolution subdivided into the two depart-

RHIN—RHINANTHUS.

ments. So it remained till, in 1870, during the war between France and Germany, Bas-Rhin and Haut-Rhin were, with portions of the depts. Moselle, Meurthe, and Vosges, erected by the king of Prussia into the German general govt. of Alsace. When peace was concluded at Frankfurt, the repossessed German territory was not incorporated with any of the German states; but, after certain portions had been restored to France, formed a member of the new German Empire, with the title of the imperial territory (Reichsland) of Alsace-Lorraine (Elsass-Lothringen).

RHIN, HAUT, *ô rănſ* (UPPER RHINE): formerly a frontier dept. in e. France, but n v mostly comprehended within the German dist. of Upper Alsace. The area of Haut-Rhin was 1,586 sq. m.; pop. (1866) 530,285; area of Upper Alsace being 1,354 sq m.; pop. (1900) 495,209. The e. frontier is formed mostly by the Rhine, and the w. frontier by the Vosges Mts. After the Rhine, the principal river is the Ill, into which the streams from the Vosges flow. In the middle f th dist. the soil is fertile, and of the valleys of the w. some are exceedingly rich and productive. The vineyards are extensive, and much wine is produced. In agriculture, and in trade and manufactures, great activity and enterprise are manifested. At the treaty of Frankfurt, the cantons of Belfort, Delle, Giromagny, with 28 other communes, all formerly included in Haut-Rhin, were restored to France by Germany. The French remnant was then called 'Territory of Belfort,' but since 1878 is again Haut-Rhin.

RHINAL, a. *rī'nal* [Gr. *rhīs* or *rhīna*, the nose]: of or pertaining to the nose. RHINALGIA, n. *rīn-ăl'jī-a* [Gr. *algos*, pain]: pain in the nose.

RHINANTHUS, *rī-năn'thūs*: genus of plants of nat. order *Scrophulariaceæ*, having an inflated 4-toothed calyx; the upper lip of the corolla compressed laterally, furnished on both sides below th tip with a straight tooth or lobe, the lower one plane and 3-lobed. The capsule is compressed and 2-celled. *R. crista-galli* is a common plant, an annual, 1-2 ft. high, seen in gardens, with yellow flowers, and rather large capsules, in which the seeds rattle when ripe, whence its name, *Yellow Rattle*. It is called also Cock's comb, from its fringed bracts.

RHINE.

RHINE, *rin* (*Rhenus*): most important river in Germany, and one of the most noted in Europe; rising in the Swiss canton of the Grisons, and after a n.n.w. course of about 750 m., falling into the German Ocean. The area of the R. basin, including its various feeders, which have been counted to the number of 12,000, is estimated at about 65,000 sq. m. The R. is divided into the Upper, Middle, and Lower R., the first term being applied to the river from its source to Basel; the second from Basel to Cologne; and the last from Cologne through the Netherlands to the sea, into which it empties by several mouths, forming an extensive delta. The head-waters of the Upper R. consist of three main streams, the Vorder R., the Mittler R., and the Hinter Rhine. The first and most easterly rises on Mount Crispalt, n.e. of Mount St. Gothard, 7,500 ft. above sea-level, and flowing e., bursts like a torrent through a deep ravine. At Dissentis, 12 m. from its source, it is joined by the Mittler R., or central branch, at the comparatively low level of 3,500 ft. At Reichenau, 50 m. from the source of the Vorder R., the stream is swelled by the third branch, Hinter R., which, taking its rise among the glaciers of the Vogelberg, flows 80 m. before it blends with the main branches. The Hinter R., considerably the longest of the upper waters, is deemed the chief source, and at its confluence with the other branch at Reichenau, the river first assumes the general name Rhine. At Coire, where the river takes a sudden turn northward, it is nearly 150 ft. wide, and navigable for rafts and flat boats. A little above the small town of Sargans, in St. Gall, it leaves the Grisons, and forming the boundary between the small principality of Lichtenstein and the Vorarlberg on the right, and St. Gall on the left, flows northward to Rheineck, where it enters the Boden See, or Lake of Constance, which may indeed be regarded as the river itself augmented in its course between Rheineck and Constance by the confluence of numerous streams. Emerging from the Upper Lake at Constance, the R. enters the Unter See, or Lower Lake, a few m. below, and following a westerly course, forms the boundary-line between Switzerland and the grand duchy of Baden; and after receiving the Thur, Töss, and Aar on the left, and the mountain torrents of the Wutach and Alb on the right, pursues its course to Basel. At Schaffhausen, about 13 m. from the western extremity of the Unter See, the waters of the river, rushing over a rock 70 ft. high, form the cataract known as Falls of Schaffhausen; while lower down the narrowing of the channel through the projection of rocks on either side gives rise to rapids both at Laufenburg, and at a point ten m. below it, at Höllenhacken, where the navigation is impeded for a considerable distance by the force of the cataracts. Below Basel, the R., turning again due n., separates Alsace-Lorraine from Baden, forms the e. boundary of Rhenish Bavaria, cuts the province of Rhine-Hesse in two, and flows between Hessen-Nassau and Rhenish Prussia, through which it afterward pursues a n.w. course. Before it reaches Cologne, it receives numerous tributaries--the

RHINE.

Ill, Wiese, Elz, Kinzig, Murg, Neckar, Main, Lahn, Moselle, etc.; and passes the cities Breisach, Strasburg, Germersheim, Spires, Mannheim, Worms, Oppenheim, Mainz, Bingen, Coblenz, and Bonn. In this middle part of its course, the river makes great bends, the current is rapid, and navigation is rendered difficult by numerous small islands and sandbanks, subject to changes of form and position. Much has been done to improve navigation above Bingen. By agreement 1840 between France and Baden, the R. has been brought into its proper channel and considerably shortened. The valley through which the R. runs between steep banks from Mainz to Bonn, contains the picturesque scenery which has made this river so celebrated, and the vineyards whence the famous Rhenish wines are obtained. From Cologne to its mouth, the R. flows through a low level country, and soon after entering the Netherlands, divides into two arms; the left, called the Waal, uniting with the Maas near Fort Loevestein, and forming the Merwede or Merwe, which below Dordrecht takes the name Old Maas; the right arm, called the R., a little above Arnhem, throws off the New Yssel, originally a canal, cut by Drusus to connect the R. with the Old Yssel. Flowing on to Wijk bij Duurstede, the R. divides again into the Lek, which unites with the New Maas near Ysselmonde, and the Kromme R., which at Utrecht parts into the Vecht and the Old R., the latter as a small stream entering the North Sea by the Katwijk canal n.w. of Leyden. The delta of the R., which extends from about $51^{\circ} 25'$ to $52^{\circ} 20'$ n. lat., and occupies nearly 50,000 sq. m. of territory, belonging to the Dutch provinces of N. and S. Holland, Utrecht, and Guelderland, requires to be protected by strong embankments. The principal of these, which begin at Wesel, are 25 or 30 ft. above the lowest level of the river. Several canals connect the R. with the Rhone and Saone, the Scheldt, Meuse, and Danube, thus opening communication with France and Belgium on one side, and with the Netherlands and every part of Germany on the other. The commerce and navigation of the R., which are of vast extent and great importance, were formerly regulated by treaties between the different states through which it passes, all of which levied tolls on vessels and goods entering their respective territories, which accumulation of duties pressed heavily on the transit trade. Steam-navigation is, however, conducted with greater regularity and energy on the R. than on any other river of Germany: and of late years, since the main lines of railway on either side of the R. have been connected by railway bridges across the river, additional importance and extension have been given to the commercial relations of all the countries connected with the Rhine. Pontoon or boat bridges cross the river at Cologne, Mainz, Mannheim, and a few other places.

RHINE, CONFEDERATION OF THE: see CONFEDERATION OF THE RHINE.

RHINENCEPHALIC—RHINOCEROS.

RHINENCEPHALIC, a. *rī'něn-sěf'a-lik* [Gr. *rhīs* or *rhīna*, the nose; *engkeph'alos*, the brain—from *en*, in; *keph'ālē*, the head]: belonging to the nose and brain, applied to the prolongation of brain-substance which forms the olfactory nerves.

RHINE'-WINE: term of very general signification, applied, however, most frequently to wines produced in the Rheingau (q.v.). The most valued and costly of these are the Schloss-Johannisberger, Hochheimer, Kloster-Erbacher, Rudesheimer, Steinberger, Gräfenberger, Rauen-thaler, Rothenberger, Scharlachberger, and Markobrunner. The red Rhine-wines, of which the Asmannshäuser is most celebrated, are not nearly so much prized as the white; neither have they the strength or bouquet of the latter. The wines of the Lower Rhine, below Düsseldorf, are generally inferior.

The term R.-W., in its general signification, includes the Pfalz and Moselle wines. It is now generally held in Germany that Rhine-wines that have been properly kept for three or four years are in the most wholesome condition for use; the very old stocks no longer find ready market except in Russia and England.

RHINO-, prefix, *rī-nō* [Gr. *rhīs*, *rhinos*, the nose, the nostrils]: of or belonging to the nose or nostrils.

RHINO, n. *rī'nō*: a common cant term for 'money.'

RHINOCEROS, n. *rī-nōs'ēr-ōs* [L. *rhīnoc'ēros*; Gr. *rhīnok'ērōs*—from Gr. *rhīs* or *rhīna*, the nose; *keras*, a horn]: large animal of Asia and Africa, named from the one or two solid fibrous horns which arm its snout. **RHINO-CERIAL**, a. *rī'nō-sē'rī-al*, or **RHINOCERICAL**, a. *-sēr'ī-kal*, pertaining to or resembling a rhinoceros.—*Rhinoceros* is the name of a genus of perissodactyl ungulates, containing the largest and most powerful of terrestrial mammalia, except the elephants. There are at least seven or eight existing species, all natives of warm parts of Asia, the Indian Archipelago, and Africa; and numerous fossil species have been discovered in the newest geological deposits. The form of the R. is clumsy and uncouth; its aspect dull and heavy. The limbs are thick and strong; each foot is terminated by three toes covered with broad hoof-like nails. The tail is small, and terminated by a small tuft. The ears are moderately large; the eyes very small. The head is large, the muzzle prolonged, and the nasal bones combine into an arch for the support of a horn, which, however, does not spring from them, but merely from the skin; a second horn, in some species, growing above it, in like manner springing from the skin, and resting for support on the bone of the forehead. The upper lip is more or less prolonged and prehensile, in some of the species so much so that it is capable of being used to pick up very small objects. The whole body, head, and limbs are covered with extremely thick and hard skin, which in none of the existing species exhibits more than mere traces of hair, though there is evidence that some of the extinct ones were covered with fur; and the hardness of the skin being such

RHINOCEROS.

that in some species it has not pliancy enough to permit the movements of the animal, it is in a manner jointed by means of folds on the neck, behind the shoulders, in front of the thighs, and on the limbs.

The horn of the R. is a remarkable organ, and a powerful weapon of offense and defense. With it the animal can root up bushes or small trees, the foliage or fruit of which it desires to eat. It is of a perfectly homogeneous structure (see HORNS), and solid, consisting of a material like consolidated hair.

The different species show some differences of dentition. None of the species have much intelligence. Although usually harmless, they are easily provoked, and show great capriciousness of temper. When irritated, they become very dangerous; and though usually slow in their movements, they can, on occasion, run rapidly. Their great weight and strength enable them to force their way through jungles, breaking down the smaller trees before



Rhinoceros (*R. Indicus*).

them. The hide is proof against the claws of the lion or tiger, and is not to be penetrated by a leaden bullet, except at very short distance, or in some of the thinner parts about the neck and chest. Bullets of iron or tin are used for shooting them.

The species of R. agree in being found sometimes solitary or in pairs, sometimes in little companies, never in large herds.

The INDIAN R. (*R. Indicus*), native of the continental parts of the E. Indies, lives chiefly in marshy jungles on the banks of lakes and rivers, often wallowing in the mud, with which it encases itself, apparently as a protection against insects, which annoy it notwithstanding the thickness of its hide. It is the largest known species of R., a large specimen being rather more than five ft. in height. The horn is sometimes 3 ft. in length, and 18 inches in circumference at the base. The Indian R. was known by very imperfect description to the ancient Greeks, receiving the inappropriate name *Indian Ass*; and from accounts of it the fable of the unicorn probably originated. Individuals have from time to time been brought alive to Europe,

RHINOPLASTIC—RHINOPLASTIC OPERATION.

and have proved moderately quiet and tractable, feeding with apparent satisfaction on moistened hay, vegetables, pulse, grain, etc.—The JAVANESE R. (*R. Javanicus*, or *R. Sondaicus*) is a somewhat smaller species, also one-horned. Sumatra has a two-horned species (*R. Sumatrensis*).—Different species of R., all two-horned, are found in almost all parts of Africa, and one or more of them were known to the ancient Romans.—The BOVELE, or BLACK R. (*R. bicornis*, or *R. Africanus*), of s. Africa, is the smallest of the known species. It is of black color, and its first horn is rather thick than long, its second short and conical. It is a fierce and dangerous animal, capable of great activity, and more dreaded by the s. African hunter than the lion itself.—The KEITLOA (*R. Keitloa*), also of s. Africa, is larger, and has the two horns nearly equal in length, the foremost horn curved backward, the other forward. It is much dreaded for its strength and ferocity.—The WHITE R. (*R. Simus*), or MUCHUCO, or MONOOHO, is the largest of the well-ascertained African species.

No species of R. is prolific: one young one only is produced at a birth, and the intervals are long. The flesh of the R. is used for food, the different species being variously esteemed. The skin is used in the E. Indies for shields; in s. Africa, it is sliced into thongs.

The earliest remains of the R. are found in Miocene strata, and in the subsequent Tertiary deposits they frequently occur. Ten species have been described. A two-horned species was found by Pallas in the frozen gravel of Siberia, with the mammoth, still covered with a shaggy coat of long wool, and having its flesh preserved.

RHINOPLASTIC, a. *rî'nō-plās'tîk* [Gr. *rhîs* or *rhîna*, the nose; *plastîkos*, plastic—from *plassō*, I form]: nose-forming, applied to an operation in surgery by which the nose is renewed (see RHINOPLASTIC OPERATION). **RHINOSCOPE**, n. *rî'nō-skōp* [Gr. *skopēō*, I view]. an instrument, consisting of an adapted oval or circular mirror, by which the back part of the nostrils may be examined. **RHINOSCOPY**, n. *-nōs'kō-pŭ*, the examination of the back parts of the soft palate, the nose, etc., by means of the rhinoscope.

RHINOPLASTIC OPERATION, *rî'nō-plās'tîk*: in surgery, operation for restoration of a portion or the whole of the nose destroyed by accident or disease: it consists in transplantation of skin from an adjoining healthy part. When the whole nose has to be replaced, the following course is usually adopted. A triangular piece of leather is cut into the shape of the nose, and is extended on the forehead with its base uppermost; its boundaries, thus flattened, are marked out on the skin with ink. Any remains of the old nose are then pared away, and a deep groove cut round the margins of the nasal apertures. When the bleeding from these incisions has stopped, the marked portion of the skin of the forehead must be carefully dissected away, till it hangs by a narrow strip between the eyebrows. When the bleeding from the forehead ceases, the flap must be twisted on itself, so that the

RHIPIPTERA--RHIZANTHS.

surface which was originally external may remain external in the new position, and its edges must be fastened with stitches into the grooves prepared for their reception. The nose thus made is to be supported with oiled lint, and well wrapped in flannel, to keep up the temperature. When complete adhesion has taken place, the twisted strip of skin may be cut through, or a little slip may be cut out of it, so that the surface may be uniformly smooth. When only a part of the nose, as one side only, or the septum, requires to be restored, modifications of the operation are required, and the skin, instead of being taken from the forehead, is taken from the cheek or the upper lip. For further details, see Fergusson's *Practical Surgery*.

The R. O. is popularly known as the *Taliacotian Operation*, from its having been performed first by Taliacotius, prof. of anatomy and surgery at Bologna, where he died 1553. The work in which the operation is described was not published till more than 40 years after his death. Instead of taking the skin from the forehead, he took it from the arm of his patient, and there is no reason why his operation, though inferior in many respects to that now adopted, should not be successful. The difficulty of keeping the arm sufficiently long in apposition with the face (about 20 days), was doubtless one reason for selecting the forehead as the part from which to take the skin. Taliacotius discusses but does not commend the plan of taking the skin from the *arm* of another person. Even if a nose were manufactured from the skin of another person, there is not the slightest reason for apprehending that it would suddenly die and drop off on the death of the original proprietor of the skin, notwithstanding the cases to the contrary recorded, as illustrative of the power of sympathy, by Van Helmot, Campanella, Sir Kenelm Digby, and others. This astounding notion was resuscitated by Edmund About in his popular novel *Le Nez d'un Notaire*.

RHIPIPTERA: see STREPSIPTERA.

RHIZA, n. *rī'za* [Gr.]: a root.

RHIZANTHS, n. plu. *rī'zānths* [Gr. *rhiza*, a root; *anthos*, a flower]: class of flowering plants growing on the roots of other plants, including the largest known flower, *Rafflesia*. RHIZANTHÆ (RHIZOGENS of Lindley), remarkable nat. order of plants. They are parasitical, brown, yellow, or purple, never of green color, destitute of true leaves, and having cellular scales instead. The stem is amorphous and fungus-like; sometimes, as in *Rafflesia* (q.v.), there is no stem; but the flowers arise immediately from the surface of the branch or stem to which the plant is parasitically attached. Spiral vessels are either few or lacking, and the substance is chiefly cellular tissue. While their general structure thus associates them with fungi, which they resemble also in their mode of decay, they have the flowers and sexual organs of phanerogamous plants. The flowers are monœcious, diœcious, or hermaphrodite. Lindley regards these plants as forming a class (Rhizogens) distinct from the other Phanerogamous plants

RHIZINE—RHIZOPHAGOUS.

(*Exogens* and *Endogens*), and as one of the connecting links between them and the Cryptogamous plants (*Thallogens* and *Acrogens*). There are not many more than 50 known species in all, of which one or two are found in s. Europe, the others in Africa and warmer parts of Asia and America. *Cynomorium coccineum* (*Balanophoraceæ*) is found in Malta, and is the *Fungus Melitensis* of apothecaries, long noted for arresting hemorrhages. Others are likewise used as styptics. *Cytinus hypocistis* (*Cytinaceæ*) grows on the roots of species of *Cistus* in s. Europe. Its extract (*Succus hypocistidis*) is used as an astringent in hemorrhages and dysentery. A species of *Ombrophytum* (*Balanophoraceæ*) springs up suddenly after rain in Peru, like a fungus, is insipid, and is cooked and eaten under the name *Mays del Monte*. Different species of *Balanophora* are abundant in n. India: they are found in the Himalaya at an elevation of 10,000 ft., producing great knots on roots of maple trees, oaks, etc., which are sought after by the Tibetans, and carried into Tibet, where they are made into very beautiful cups.

RHIZINE, n. *rî'zîn* [Gr. *rhiza*, a root]: the root of a moss or a lichen; called also *Rhizula*.

RHIZOCARPOUS, a. *rî'zô-kâr'pûs* [Gr. *rhiza*, a root; *karpos*, fruit]: in *bot.*, applied to **RHIZOCARPEÆ**, n. plu. *-pě-ě*, a group of cryptogams including *Marsil'ëa*, the pepperworts, etc., which have their organs of fructification between the root-fibres.

RHIZODUS, n. *rî'zô-dûs* [Gr. *rhiza*, a root; *odous* or *odonta*, a tooth]: in *geol.*, a genus of carboniferous sauroid fishes. **RHIZODONT**, n. *-dônt*, a reptile whose teeth are planted in sockets, as the crocodile.

RHIZOGEN, a. *rî'zô-jěn* [Gr. *rhiza*, a root; *gennâô*, I produce]: in *bot.*, producing roots. **RHIZOGENS**, n. plu. same as **RHIZANTHS**, which see. **RHIZOIDS**, n. plu. *rî'zoyds* [Gr. *eidos*, resemblance]: the rootlike outgrowths of many *Algæ*.



Rhizome or Rootstock of Iris.

RHIZOME, n. *rî'zôm*, **RHIZOMES**, n. plu. *-zômz*, or **RHIZOMA**, n. *rî-zô'ma*, **RHIZOMATA**, n. plu. *-zô'ma-tă* [Gr. *rhizōma*, the mass of a tree's roots—from *rhiza*, a root]: in *bot.*, a thick stem running along or under ground, and sending forth shoots above and roots below.

RHIZOMORPHOID, a. *rî'zô-môr'foyd* [Gr. *rhiza*, a root; *morphē*, shape; *eidos*, resemblance]: in *bot.*, root-like in shape.

RHIZOPHAGOUS, a. *rî-zôf'a-gûs* [Gr. *rhiza*, a root; *phagein*, to eat]: feeding on roots.

RHIZOPHOROUS—RHIZOPODA.

RHIZOPHOROUS, a. *rî-zŏf'ô-rŭs* [Gr. *rhiza*, a root; *phoros*, bearing—from *pherô*, I bear]: in *bot.*, root-bearing.

RHIZOPHORA, n. plu. *-ô-ra*, a genus of tropical plants



Mangrove (*Rhizophora Mangle*).

which root in the mud, and send down from their branches stems and new roots, forming thus a dense thicket to the very verge of the water; the mangrove.

RHIZOPODA, *rî-zŏp'ô-da*, or **RHI'ZOPODS**, n. plu. [Gr. *rhiza*, a root; *pous* or *poda*, a foot]: important class of the lowest of the animal sub-kingdoms, the Protozoa. In all organisms of this class, the body is composed of a simple gelatinous substance, to which the term 'sarcode' is applied; and in all, locomotion is performed by the protrusion of processes which, from their function, are termed 'pseudopodia,' or false feet. As in the case of all the Protozoa, except the Infusoria, there is no mouth or intestinal tube.

As a typical form of rhizopod, the *Amæba* (fig. 1), a minute animal readily obtained, may be taken. On plac-

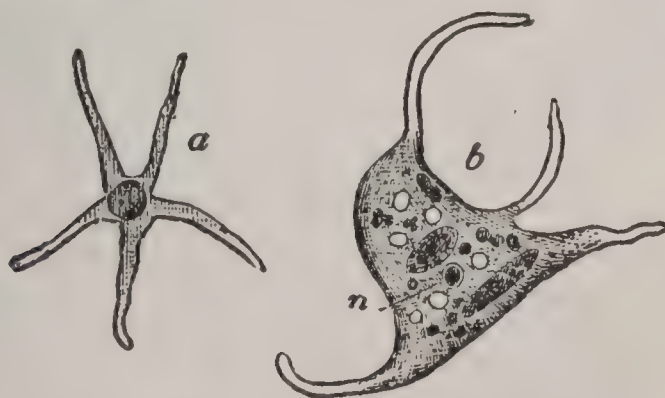


Fig. 1.—*Amœba radiosa*.

a, young *Amœba*, with five pseudopodia protruded; *b*, another specimen.

ing the light sediment from a watering trough, or any stagnant water, under a microscope, careful search will

RHIZOPODA.

bring to view, here and there, a minute roundish mass of semi-transparent jelly, seemingly devoid of life. Soon, however, the animal begins to push out in various directions portions of the gelatinous mass of which it consists,

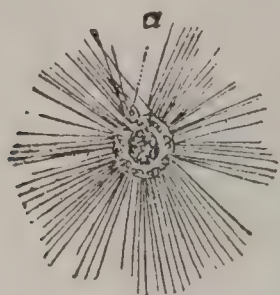


Fig. 2.—Sun-animalcule in the act of feeding:



Fig. 3.—*Diffugia proteiformis*.



Fig. 4. *Arcella acuminata*.

At *a* is seen a captured Infusorian entering the substance of the body.

and by the alternate expansion and retraction of these prolongations, it effects a slow irregular locomotion—the most striking fact being a very thin transparent expansion in some direction, followed by a flow of internal granules. Should these processes come in contact with anything fit for food, they coalesce around it, and the morsel soon becomes inclosed in the interior of the body, much as (to use an illustration employed by Prof. Greene in *Manual of the Protozoa*) a stone may be forced into the interior of a lump of clay, or similar plastic material. When all that is nourishing is absorbed, the indigestible remains are ejected

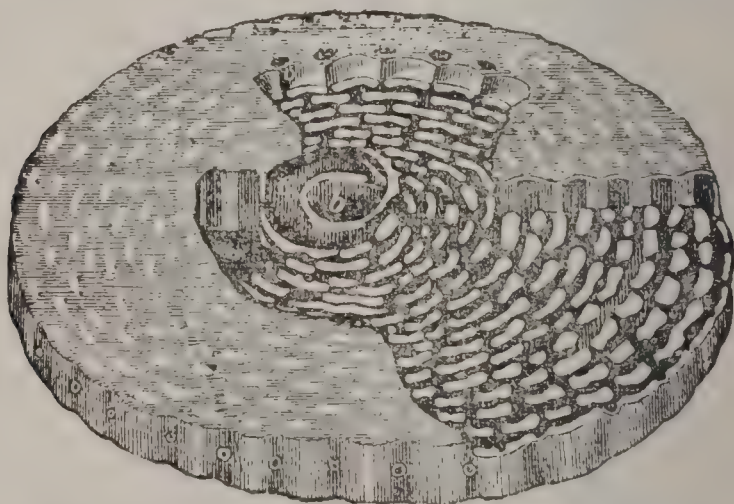


Fig. 5.—Structure of *Orbitolites complanatus*:

a simple disk of *Orbitolites* laid open to show its interior; *b*, central cell; *c*, circumambient shell, surrounded by concentric zones of shells connected with each other by annular and radiating passages.

through some part of the body. A nucleus may generally be observed, and at times (but not permanently) one or more clear vesicles may be noticed, containing a fluid furnished apparently during the process of digestion. The animal extemporizes a stomach for the occasion, much as it puts forth temporary legs or arms. The members of the

RHIZOTAXIS—RHODANTHE.

genus *Amæba* may be regarded as representing the simplest forms of animal life. Closely allied to the *Amæba* is the *Actinophrys*, or Sun-animalcule (fig. 2), and both these genera are completely naked—the sun-animalcule putting forth more permanent, straight, rod-like pseudopodia (said to be provided with suckers at the end) capable of being rapidly elongated or shortened, in the procurement of food. In *Diffugia* (fig. 3), the ‘sarcode’ is invested with a membranous oval coat with an aperture at one end, from which the pseudopodia project. In *Arceella* (fig. 4), the soft parts are protected by a discoid, or hemispherical shield, open below; while in the *Foraminifera* (q.v.), the soft part is invested with a calcareous shell, sometimes simple, but more commonly an agglomeration of minute chambers (fig. 5).

The class Rhizopoda is divided into Order 1. *Foraminifera*, which, *Amæba*, etc., excepted, have chambered, calcareous, or horny, rarely arenaceous, shells (examples, Orbitolites, Nummularia, Globigerina, etc., q.v.); and Order 2. *Radiolaria*, formerly called Polycystines, with siliceous shells, and branched, usually anastomosing, granular pseudopodia. All the *Amæba* are microscopic, and seldom exceed $\frac{1}{50}$ of an inch in diameter. The *Foraminifera* (q.v.) are somewhat larger.—See Schultze, *Ueber den Organismus der Polythalamien*, 1854; Williamson, *On the Recent Foraminifera of Great Britain*, 1858; Claparède et Lachmann, *Études sur les Infusoires et les Rhizopodes*, 1858–60; Carpenter, *Introduction to the Study of the Foraminifera*, 1861; and Hæckel, *Die Radiolarien*, 1862.

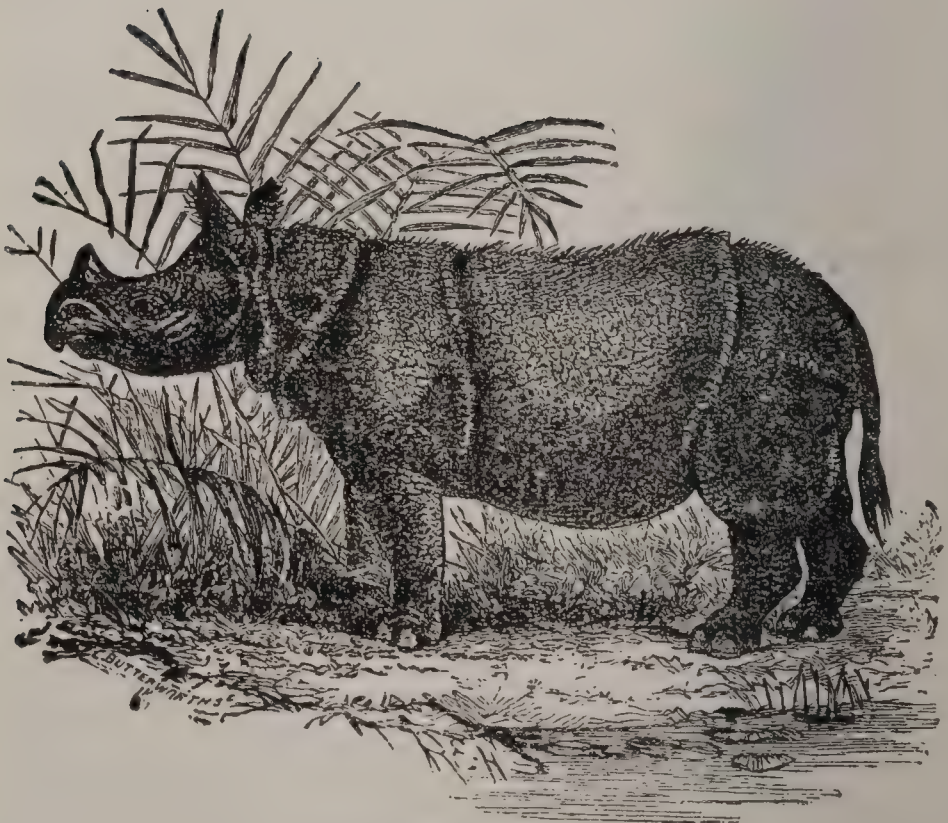
RHIZOTAXIS, n. *rī-zō-tāks'is* [Gr. *rhiza*, a root; *taxis*, a putting in order—from *tassein*, to arrange]: in *bot.*, the arrangement of the roots.

RHODANIC, a. *rō-dān'ik* [Gr. *rhodon*, a rose]: denoting an acid, also called sulphocyanic acid, producing a red color with persalts of iron.

RHODANTHE, n. *rō-dān'thē* [Gr. *rhodon*, a rose; *anthos*, a flower]: a beautiful flowering annual, much esteemed.



Common African Rhinoceros.



Javan Rhinoceros.

RHODE ISLAND.

RHODE ISLAND, *ròd ì'land* (officially 'THE STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS'): a state; one of the 13 original states in the American Union.

Location and Area.—R. I. is in lat. $41^{\circ} 18'$ — $42^{\circ} 3'$ n., long $71^{\circ} 8'$ — $71^{\circ} 53'$ w.; bounded n. and e. by Mass., s. by the Atlantic Ocean, w. by Conn.; extreme length n. to s. 47.5 m.; extreme breadth e. to w. 40 m.; land and water area 1,250 sq. m. (800,000 acres); caps. Providence and Newport.

Topography.—The surface is much diversified; about one-tenth is water; the greater part of the remainder is islands; a small part of the land surface is level and marshy; the greater part is broken and hilly. The state is divided into two unequal parts by Narragansett Bay, the larger part being in the w. The highest parts of the state are Mounts Hope, Pine, Easchahoague, Hopkins, Chopmist, Neutaconkanet, Woonsocket, and Diamond. The principal islands are Aquidneck ('the Eden of America'), Cononicut, Prudence, Block (summer resort), Patience, Goat, Dutch, and Perry. R. I. is drained chiefly by the Pawtucket, Pawtuxet, and Pawcatuck rivers, all navigable for short distances and affording excellent water-power. Newport has one of the finest harbors in the world, and can give anchorage to a large fleet of the heaviest vessels. The soil is moderately fertile, and the flora, fauna, and vegetation generally are similar to those of Mass. and Conn. The most valuable crop is hay.

Climate.—The climate is nearly like that of the adjoining states, being modified by Narragansett Bay, and the summer season is delightful, particularly at Newport. The rainfall averages 40 in. in the e. and 44 in the w.; mean annual temperature ranges 47° — 51° ; average mean at Providence for 43 years 47.94° , and average annual range about (or less than) 100° .

Geology.—The islands and part of the w. section show carboniferous formation, and are believed to form the e. limit of the anthracite region in the United States. The greater part of the w. section and a small part of the e. are of Eozoic origin. The economic properties are coal, iron-ore, limestone, sandstone, serpentine, marble, granite, and brickclay.

Zoology.—Duck, brant, and teal abound in Narragansett Bay; snipe, woodcock, and grouse in the neighboring swamps and marshes.

Agriculture.—In 1890 the farms numbered 5,500, covering 469,281 acres, of which 274,491 were improved, and 194,790 unimproved; the land, fences, and buildings were valued at \$21,873,479; implements and machinery, \$941,030; live stock on hand, \$2,364,970; products (1889), \$4,218,300; including 9,864 horses; 51 mules; 34,777 neat cattle of which 23,943 were milch cows; 12,055 swine; 11,400 sheep; 41,021 lbs. wool; 10,610,547 gallons milk; 965,456 lbs. butter; 24,631 lbs. cheese; 8,009 bush. barley; 253,810 bush. maize; 100,520 bush. oats; 9,617 bush. rye. In 1900 the farms numbered 5,498, comprising 455,602 acres, of which 187,354 acres were improved and 268,248 unimproved, and all farm property, implements and machinery, and live stock, was valued at \$26,989,189.

RHODE ISLAND.

Manufactures.—R. I. had (1890) 3,337 manufacturing establishments, using a capital of \$126,483,401, employing 85,976 persons, paying in wages \$37,927,921, using materials valued at \$76,253,023, and yielding products valued at \$142,500,625. The chief industry according to capital employed was manufacture of cotton goods, which had 94 establishments; capital \$38,798,161; employees 24,832; paid in wages \$8,131,142; used materials \$14,347,672; yielded products \$27,310,499. Other industries were: worsted goods, establishments 28, capital \$14,949,106, employees \$11,757, wages \$4,263,968, materials \$13,932, products \$22,319,684; foundry and machine-shop products, establishments 101, capital \$11,377,475, employees 7,212, wages \$4,219,521, materials \$3,752,455, products \$10,170,286; woollen goods, establishments 40, capital \$9,360,927, employees 6,028, wages \$2,297,416, materials \$147,505, products \$325,790; jewelry, establishments 179, capital \$6,095,971, employees 4,551, wages \$2,657,158, materials \$3,301,814, products \$8,011,007; dyeing and finishing textiles, establishments 22, capital \$5,739,692, employees 3,720, wages \$1,593,055, materials \$1,819,351, products \$4,743,561; gas, illuminating and heating, establishments 7, capital \$4,118,273, employees 396, wages \$262,780, materials \$252,708, products \$812,013; silverware, establishments 4, capital \$3,002,232, employees 1,034, wages \$780,935, materials \$1,645,860, products \$2,509,869. In 1900 R. I. reported 4,189 manufacturing establishments employing \$183,784,587 capital and 98,813 persons; paying \$41,114,084 for wages and \$96,392,661 for material used; and yielding products valued at \$184,074,378.

Commerce.—During the fiscal year ending 1890, June 30, the imports were \$859,895, and domestic exports \$95,023. The entrances were 111 vessels of 16,055 tons; clearances 86 vessels of 11,090 tons; and there were registered, enrolled, or licensed in the custom-houses, 58 steam vessels of 24,205.56 tons, 175 sailing vessels of 14,285.66 tons, and 2 barges of 689.15 tons—total vessels 235, tonnage 39,180.37. The internal revenue receipts of R. I. are included in the returns from Conn., which showed distilled spirits \$252,847, tobacco \$155,097, fermented liquors \$283,691, oleo-margarine \$116,916, penalties \$3,334, total \$811,885.

Railroads.—In 1850 R. I. had 66 m. of railroad track. The development since of trackage wholly in the state has been (1870) 136; (1880) 211; (1890) 217; (1901) 211. In the latter year the railroads were controlled by 15 corporations, had \$49,269,550 capital, and \$35,659,789 debt; received \$18,916,128, and expended \$16,218,564; and had net earnings \$2,697,564. There were also 5 street railroads (3 horse, 1 electric motor, 1 cable), which had trackage 77½ m.; capital \$2,122,100; debt \$173,651; receipts \$1,002,131; expenditures \$814,493; and net earnings \$187,638.

Religion.—In 1890 the Bapt. was the largest denomination, reporting 3 associations, 70 churches, 75 ministers, 12,078 members, 76 Sunday schools, 1,548 officers and

RHODE ISLAND.

teachers, 12,183 scholars, church property valued at \$1,088,000, and aggregate contributions \$147,640. The Prot. Episc. Church reported 51 parishes and missions, 58 clergy, 9,353 communicants, 927 Sunday-school teachers, 7,776 scholars, 2 charitable institutions, and contributions \$234,651. The Meth. Episc. Church reported 69 churches, 30 local preachers, 8,859 members, 75 Sunday schools, 1,515 officers and teachers, 10,927 scholars, 28 parsonages, value of church property \$715,100, parsonages \$87,200. The Congl. Churches reported 32 churches, 28 ministers, 4,328 families, 6,865 members, 6,696 Sunday-school members, and contributions \$61,322. The Rom. Cath. diocese of Providence embraces all of R. I. and parts of Mass., and had in R. I., 47 churches, 1 bp., 91 priests, 18 religious communities and convents, 9 academies, 17 parochial schools, 3 asylums.

Education.—In 1880 R. I. had 52,273 children of school age (5-15 years), of whom 42,489 were enrolled in the public schools, and 27,453 average daily attendance. The cost of maintaining the public schools was \$530,167, of which \$401,738 were appropriated for teachers' salaries. There was one univ., Brown (q.v.), which had 17 instructors and 247 students. In the school year 1894-95 there were 57,971 children enrolled in the public schools, 41,065 average daily attendance; 1,620 teachers (172 males, 1,448 females); 515 schoolhouses; school property valued at \$4,124,887; receipts \$1,346,821; expenditures \$1,363,084; teachers' salaries \$838,577. The Rom. Cath. parochial schools had 10,666 pupils, and various private schools 1,573. There were 14 public high schools, with 100 teachers and 2,442 students; grounds and buildings valued at \$135,000; total income \$14,720; 12 private high schools, with 64 teachers and 1,190 pupils; 1 state normal school, with 10 teachers and 196 students; 1 training school for nurses, with 42 students; 4 business colleges with 21 instructors and about 500 students; 2 state reform schools, with 9 teachers and 268 pupils, value of grounds and buildings \$400,000, expenses \$52,702. Brown University had (1902-3) 76 instructors and 926 students; benefactions \$395,306; 130,000 vols. in library; productive fund \$2,225,621; total income, \$575,550. A compulsory education law enacted 1887. In 1886-7 R. I. had 30 free lending libraries with 112,909 vols.; 2 free public reference, 30,000; 7 free corporate lending, 50,000; 7 soc. and assoc., 64,806; 9 corporate lending, 97,794; and 5 circulating, 16,422—total libraries 60, vols. 372,807. In 1890 there were 9 daily, 3 semi-weekly, 39 weekly, 2 bi-weekly, and 13 monthly periodicals—total 66.

Illiteracy.—Persons 10 years old and over (1880) 220,461, unable to read 17,456, unable to write 24,793, whites unable to write 23,544; foreign-born whites 70,562, unable to write 19,283; whites 10-14 years old 25,587, unable to write 2,122: males 1,156, females 966; whites 15-20 years old 31,049, unable to write 2,811: males 1,400, females 1,411; whites 21 years old and over 158,522, unable to write 18,611; males 7,157, females 11,454; colored persons

RHODE ISLAND.

10 years old and over 5,303, unable to write 1,249 ; colored 10-14 years old 531, unable to write 49 : males 25, females 24. In 1890 of a total population 281,959 10 years old and over, there were 27,525 illiterates ; of these native whites numbered 4,087 ; foreign whites 22,268 ; total whites 26,355 ; colored 1,170.

Finances and Banking.—In 1880 R. I. had a net state debt of \$1,832,463 ; school district \$181,466 ; city and town \$11,088,861—total \$13,102,790, and an estimated real and personal valuation of \$252,536,673. 1903, Jan. 1, the bonded state debt was \$2,978,000 ; sinking fund \$444,452 ; net debt, \$2,533,548 ; and the assessed property valuation amounted to \$413,209,603. There were 43 national banks (cap. \$14,955,250, surplus \$3,436,572) ; 5 state banks, 9 private banks, 18 loan and trust companies, and a number of fire insurance companies.

History.—It is believed that portions of R. I. were discovered and explored by the Northmen about A.D. 1000, and that the Vinland, which occurs so often in their records, was this immediate region (see MASSACHUSETTS). Narragansett Bay was visited by Giovanni da Verazzano 1524 ; but the settlement of the state was effected 1636, June, by Roger Williams (q.v.), who had been ordered to depart from Mass. on account of his persistent public teaching against certain laws of that colony. In 1638 he obtained a grant of territory from the Narragansett Indians, and 1644 was given a parliamentary charter, under which the separate settlements were united under one govt. 1647, styled, 'The Incorporation of Providence Plantations in the Narragansett Bay in New England.' Cromwell confirmed this charter 1655, and Charles II. granted a new one 1663 to the 'colony of Rhode Island and Providence Plantations,' which was continued in force till 1843, when the present constitution was adopted. Both the parliamentary and royal charters guaranteed complete freedom of conscience in religious matters. In 1675-6 the 'Narragansett country' was the scene of an Indian war in which King Philip was killed and 1,000 of his warriors either killed or captured. During the war between Great Britain and France (1756), R. I. sent out 50 privateers, manned by about 1,500 men. At the beginning of the revolutionary war, the first patriot naval squadron was fitted out at Providence, and sailed under command of Esek Hopkins (q.v.). Newport was occupied by the British 1776, Dec., who successfully defended it against a combined American and French attack 1778, Aug. 8, and abandoned it near the close of 1779, the French allies making it their headquarters 1780, July 11. R. I. was the last colony to ratify the federal constitution, and did not enter the Union till 1790, May 29. The present constitution was an outgrowth of the Dorr rebellion (see DORR, THOMAS WILSON), and has been amended several times since adoption. A prerevolutionary dispute with Mass. concerning the boundary line was settled 1861 by the cession to Mass. of the town of Fall River in exchange for the towns of Pawtucket and E. Providence. During the civil war R. I. sent 23,236 troops to the Union armies.

RHODE ISLAND.

Government.—The executive authority is vested by the constitution in a gov. (salary \$5,000 per annum) and a lieut. gov., both elected annually; the legislative in a general assembly, comprising a senate of 37 members, and a house of representatives of 72 members, senators and representatives elected annually, salary of each \$1 per day and 8 cts. mileage; and the judicial in a supreme court, composed of a chief-justice (salary \$5,500 per annum) and 4 assoc. justices (salary each \$5,000 per annum), court of common pleas, courts of probate, and justices of the peace. The gov. is aided by a sec. of state, gen. treas., state auditor, insurance commissioner, railroad commissioner, atty. gen., adj. gen., and a commissioner of public schools. There are an appraiser, 3 collectors, and 4 deputy collectors of customs; a collector and 5 deputy collectors of internal revenue; and a supt., asst. supt., and 36 men in the U. S. life-saving service. 1891, Jan., there were 142 post-offices, of which 1 was first class, 5 second, 8 third, 14 presidential, 128 fourth, and 25 money-order offices.

The successive gov., with their terms of service, are as follows: John Coggeshall 1647-8; William Coddington 1648-9; John Smith 1649-50; Nicholas Easton 1650-1; *Providence and Warwick*: Pres. John Smith 1622-3; Pres. Gregory Dexter 1653-4; *Portsmouth and Newport*: Pres. John Sandford 1652-54; *United Towns*: Nicholas Easton 1654; Roger Williams 1654-57; Benedict Arnold 1657-60; William Brenton 1660-62; *under Royal Charter*: Benedict Arnold 1662-66; William Brenton 1666-69; Benedict Arnold 1669-72; Nicholas Easton 1672-74; William Coddington 1674-76; Walter Clarke 1676-7; Benedict Arnold 1677-8; William Coddington 1678; John Cranston 1678-80; Peleg Sanford 1680-83; William Coddington, Jr., 1683-85; Henry Bull 1685-6; Walter Clarke 1686; Henry Bull 1690; John Easton 1690-95; Caleb Carr 1695; Walter Clarke 1696-7; Samuel Cranston 1698-1728; Joseph Jencks 1728-32; William Wanton 1732-3; John Wanton 1734-40; Richard Ward 1740-43; William Greene 1743-45; Gideon Wanton 1745-6; William Greene 1746-7; Gideon Wanton 1747-8; William Greene 1748-55; Stephen Hopkins 1755-57; William Greene 1757-8; Stephen Hopkins 1753-62; Samuel Ward 1762-3; Stephen Hopkins 1763-65; Samuel Ward 1765-67; Stephen Hopkins 1767-8; Josias Lyndon 1768-9; Joseph Wanton 1769-75; *state organization*: Nicholas Cooke 1775-78; William Greene, Jr., 1778-86; John Collins 1786-90; Arthur Fenner 1790-1805; Paul Mumford, actg. 1805; Henry Smith, actg. 1805-6; Isaac Wilbur, actg. 1806-7; James Fenner 1807-11; William Jones 1811-17; Nehemiah R. Knight 1817-21; William C. Gibbs 1821-24; James Fenner 1824-31; Lemuel H. Arnold 1831-33; John B. Francis 1833-38; William Sprague 1838-9; Samuel W. King 1839-43; *under constitution*: James Fenner 1843-45; Charles Jackson 1845-6; Byron Diman 1846-7; Elisha Harris 1847-49; Henry B. Anthony 1849-51; Philip Allen 1851-2; William B. Lawrence, actg. 1852; Philip Allen 1852-3; Francis M. Dimond, actg. 1853-4; William W. Hoppin 1854-57; Elisha Dyer 1857-59; Thomas G. Turner 1859-60; William Sprague 1860-1; John R.

RHODE ISLAND.

Bartlett, actg. 1861-2; William C. Cozzens, actg. 1863; James Y. Smith 1863-66; Ambrose E. Burnside 1866-69; Seth Padelford 1869-73; Henry Howard 1873-75; Henry Lippitt 1875-77; Charles C. Van Zandt 1877-80; A. H. Littlefield 1880-83; A. O. Bourn 1883-85; George P. Wetmore 1885-87; John W. Davis 1887-8; Royal C. Taft, 1888-9; Herbert W. Ladd 1889-90; John W. Davis 1890-1; Herbert W. Ladd, 1891-92; D. Russell Brown, 1892-95; Charles W. Lippitt, 1895-1897; Elisha Dyer, 1897-1900; William Gregory, 1900-1; L. F. C. Garvin, 1901-4.

Counties, Cities, and Towns.—R. I. is divided into 5 counties, which had pop. (1880): Providence 197,874; Newport 24,180; Washington 22,495; Kent 20,588; Bristol 11,394; and (1890): Providence 255,123; Newport 28,552; Kent 26,751; Washington 23,649; Bristol 11,428. The most populous cities and towns were (1880): Providence 104,857; Pawtucket 19,030; Woonsocket 16,050; Newport 15,693; Lincoln 13,765; Warwick 12,164; Cumberland 6,445; Westerly 6,104; Cranston 5,940; Johnston 5,765; Burrillville 5,714; E. Providence 5,056; and Coventry 4,519; and (1890): Providence 132,146; Pawtucket 27,633; Woonsocket 20,830; Lincoln 20,355; Newport 19,457; Warwick 17,761; Johnston 9,778; E. Providence 8,422; Cranston 8,099; Cumberland 8,090; Westerly 6,813; and Burrillville 5,492.

Politics.—State elections (annual) are on the first Monday in Apr.; congressional and presidential on Tuesday after the first Monday in Nov. The legislature meets on the last Tuesday in May in Newport, and holds an adjourned session annually in Providence; no limit of session. Paupers, lunatics, persons *non compos mentis*, convicted of bribery or infamous crime till restored to right to vote, and those under guardianship, are excluded from voting. The state govt. 1890, Apr.—1891, Apr. was democratic in state officers; republican majority in senate 9, democratic in house 14, democratic on joint ballot 5. The election 1891 Apr. gave the state offices and legislature (on joint ballot) to the republicans by small majorities. A modification of the Australian ballot law was tested first 1890. R. I. has 4 electoral votes (unchanged by new apportionment 1890). Her votes for pres. and vice-pres. have been as follows: 1792, George Washington and John Adams 4; 1796, John Adams and Oliver Ellsworth; 1800, John Adams, pres., Charles C. Pinckney 3, John Jay 1, vice-pres.; 1804, Thomas Jefferson and George Clinton; 1808, Charles C. Pinckney and Rufus King; 1812, De Witt Clinton and Jared Ingersoll; 1816, James Monroe and Daniel D. Tompkins; 1820, James Monroe and Daniel D. Tompkins; 1824, John Q. Adams, pres., John C. Calhoun 3, blank 1, vice-pres.; 1828, John Q. Adams and Richard Rush; 1832, Henry Clay and John Sergeant; 1836, Martin Van Buren and Richard M. Johnson; 1840, William Henry Harrison and John Tyler; 1844, Henry Clay and Theodore Frelinghuysen; 1848, Zachary Taylor and Millard Fillmore; 1852, Franklin Pierce and William R. King; 1856, John C. Fremont and William L. Dayton; 1860, Abraham Lincoln and Hannibal Hamlin; 1864, Abraham Lincoln and Andrew Johnson; 1868, Ulysses

RHODES.

S. Grant and Schuyler Colfax ; 1872, Ulysses S. Grant and Henry Wilson ; 1876, Rutherford B. Hayes and William A. Wheeler ; 1880, James A. Garfield and Chester A. Arthur ; 1884, James G. Blaine and John A. Logan ; 1888, Benjamin Harrison and Levi P. Morton ; 1892, Benjamin Harrison and Whitelaw Reid ; 1896, William McKinley and G. A. Hobart ; 1900, Wm. McKinley and Theo. Roosevelt.

Population.—(1790) white 64,470, free colored 3,407, slaves 948, total 68,825 ; (1800) white 65,438, free colored 3,304, slaves 380, total 69,122 ; (1810) white 73,214, free colored 3,609, slaves 108, total 76,931 ; (1820) white 79,413, free colored 3,554, slaves 48, total 83,059 ; (1830) white 93,621, free colored 3,561, slaves 17, total 97,199 ; (1840) white 105,587, free colored 3,238, slaves 5, total 108,830 ; (1850) white 143,875, free colored 3,670, total 147,545 ; (1860) white 170,649, free colored 3,952, total 174,620 ; (1870) white 212,219, colored 4,980, total 217,353 ; (1880) total 276,531 ; (1890) total 345,506 ; (1900) total 428,556.

RHODES, *rōdz* : ancient and famous maritime city, cap. of the island of R., and on its n.e. extremity. The harbors, of which there are two, are well fortified and separated by a narrow quay. At their entrances are two large towers of quadrangular shape. The harbors, however, have long been neglected, and this once flourishing mart of the East is now comparatively desolate, without industry or active commerce. The town, overlooked by mosques and minarets, consists of ill-built houses and gloomy streets. The earthquakes of 1851, 56, and 63, as well as the frightful powder-explosion 1856, caused by a flash of lightning, did much to devastate the town. By the powder-explosion the church of St. John, built 1500, and the great tower of the Knights of St. John, were shattered, together with 300 houses, under whose ruins 1,000 townspeople lost their lives ; and the earthquake of 1863 destroyed 2,000 houses and many lives. The palace of the grand master is now in ruins, and the hospital of the knights serves as a granary.—Pop. about 20,000.

The city of R. was founded B.C. 408, when the three more ancient towns were abandoned and the whole population joined to found R. as their capital. It was built on a regular plan, the unity and harmony of its architecture being secured by committing the design of the whole to one man, Hippodamus of Miletus, who had planned the Piræus at Athens. It was girt about by strong walls, surmounted by towers, and was provided with two excellent harbors. But it was remarkable for the number and excellence of its paintings, sculptures, and statues, as well as for the beauty and strength of its architecture. The new city soon became one of the most splendid in the world. At the entrance of one of its ports stood a gigantic brazen statue of Helios, 70 cubits high, called the Colossus of Rhodes, one of the seven wonders of the ancient world. 3,000 other statues, of which 100 were colossal, adorned the city. The capital of a fertile and flourishing island, and the great centre of the commerce of the Mediterranean, R. long prospered abundantly. The arts were

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prosecuted with assiduity, and intellectual activity manifested itself here long after it had declined in most parts of Greece. From the outbreak of the Peloponnesian war to the middle of B.C. 4th c. R. was alternately in league with Athens and in arms against that city. Like the rest of Greece, it submitted to the victorious Alexander, and received a Macedonian garrison; but on the death of Alexander, B.C. 323, the Rhodians expelled the intruders. From this time to the overthrow of the Macedonian monarchy, R. largely extended its territories, and rose to great commercial and naval importance. After the death of Cæsar, whose side the Rhodians had taken against Pompey in the civil war, they were defeated in a naval engagement by Cassius, who B.C. 42 entered the city by force, massacred the hostile leaders, seized the public property, and rifled the temples. This visitation broke the power of R., but it long maintained its *prestige* as a seat of learning. During several centuries, R. remained in the power of the Greek emperors. In 1310 the grand master of the Knights of St. John of Jerusalem settled here, and here the brethren remained till the 16th c. (see SAINT JOHN OF JERUSALEM, KNIGHTS OF). Since this period, R. has remained a possession of Turkey.

RHODES, ISLAND OF: island in the Ægean Sea, now belonging to Asiatic Turkey; long an important, wealthy, and independent state of ancient Greece; off the s.w. coast of Anatolia, Asia Minor, about 12 m. from its nearest point; between $35^{\circ} 52'$ and $36^{\circ} 28'$ n. lat., and $27^{\circ} 40'$ and $28^{\circ} 15'$ e. long.; 45 m. in length, 22 m. in greatest breadth; about 424 sq. m. It is traversed in the direction of its length—n.e. to s.w.—by a chain of mountains, which reach in Mt. Artemira (anc. *Atabyros*) a height of 4,070 ft., and in Mt. Artamiti nearly 6,000 ft. The mountains are covered with forests, the valleys are fertile, and the well-watered plains form rich and beautiful pasture-lands. Of all the islands in the Levant, R. possesses the most delightful and the most temperate climate. It produces oil, oranges, citrons, etc., and might raise in profusion most necessities and luxuries. But owing to the insecurity and extortion from which the Rhodians have long suffered, agriculture is depressed; much fertile land lies waste, and the island does not even raise corn enough for its scanty population. A little marble is quarried. The harbors are neglected, and the trade is inconsiderable.

R, anc. *Rhodos*, was inhabited at a very early period. The Telchines, asserted by tradition its most ancient inhabitants, are said to have migrated hither from Crete. It was not, however, until the immigration of a branch of the Doric race that the distinctive national character of the Rhodians became fixed. The first immigration of Dorians seems to have taken place before the Trojan war, for R. is said to have sent nine ships to Troy under the leadership of the Heracleid Tlepolemus. Situated between the three ancient continents, a position highly favorable to the development of commercial enterprise, the Rhodians at an early period rose to great prosperity and affluence. Their

RHODIAN—RHODIUM.

three most ancient towns were Lindus, Ialysus, and Camirus, and they planted numerous colonies not only on the shores in their vicinity, but also on the coasts of Lycia, Italy, Sicily, and Spain. At the end of B.C. 5th c. they founded the city of Rhodes (q.v.); and after this event, the history of the island is comprised in that of the city.—Pop. (1890) 28,000; of whom 6,000 are Turks, 1,000 Jews, the remainder Greeks.

RHODIAN, a. *rō'dī-an*: pertaining to the island of *Rhodes*, in the Mediterranean: N. a native or inhabitant.

RHO'DIAN LAW: earliest system of marine law known to history; said to be compiled by the Rhodians after they had by their commerce and naval victories obtained the sovereignty of the sea, about B.C. 900. Cicero refers to the Rhodians as illustrious for their naval discipline. The collection of marine institutions termed R. L. is found in Vinnius, but their authenticity is doubted. Some say that the Romans adopted these laws during the first Punic war; others say that Justinian incorporated them with the Roman law. The leading points supposed to be borrowed from the Rhodian law relate to the shares of the officers and crew of a ship, the punishment of barratry and of plundering wrecks, and compensation payable to the heirs of mariners who lost their lives in the service of the vessel.

RHODIUM, n. *rō'dī-um* [Gr. *rhodon*, a rose] (symb. R., Rh, and Ro, according to different chemists; at. wt., 104—sp. gr. 10·6–12): one of the metals of the platinum group. It is a white, very hard metal, resembling aluminium rather than silver. It fuses less easily than platinum. It is ductile and malleable when pure and after fusion, and insoluble in all acids; but when alloyed in small quantity with platinum, copper, bismuth, or lead, it dissolves with them in *aqua regia*. It usually forms about one-half per cent. of the ore of platinum. To obtain R. the solution from which platinum, palladium, and iridium have been separated is mixed with hydrochloric acid, evaporated to dryness, and the residue treated with alcohol of sp. gr. 0·837, which dissolves everything except the double chlorides of R. and sodium. After filtering, heating the residue to redness, and boiling with water, metallic R. remains. Two oxides, two sulphides, and three chlorides of R. have been obtained and examined by chemists. The sesquichloride unites with several soluble chlorides to form crystallizable double salts, which are of rose-color (whence the name R. from the Gr. *rhodon*, a rose). An alloy of steel, with a small quantity of R., is said to possess extremely valuable properties; and according to Deville, an alloy of 30 or more parts of R. with 70 of platinum, is easily worked, and is not attacked by *aqua regia*, and hence is excellent material for crucibles. This metal was discovered 1803 by Wollaston.

RHODODENDRON.

RHODODENDRON, n. *rō'dō-dēn'drōn* [Gr. *rhodion*, a rose; *dendron*, a tree—*lit.*, the rose-tree]: genus of trees and shrubs of nat. order *Ericaceæ*, having ten stamens, a very small calyx, a bell-shaped or somewhat funnel-shaped corolla, and a capsule splitting up through the dissepiments. The buds in this and nearly allied genera, as *Azalea* (q.v.), are scaly and conical. The species are numerous; they have ever-green leaves, and many are of great beauty in foliage and flowers. A few small species are natives of continental Europe and of Siberia; but the greater number belong to temperate parts of N. America, and to the mountains of India. *R. maximum*, so designated when the far larger Indian species were unknown, is a common ornamental shrub. It is a large shrub or small tree, which forms impenetrable thickets on many parts of the Alleghanies and in mountainous parts of New England, and has a magnificent appearance when in flower. The leaves are large, oblong, acute, stalked, leathery, dark green and shining



Rhododendron Chrysanthum.

above, rusty brown beneath. The flowers are large, in umbellate corymbs, varying in color from pale carmine to lilac. *R. ponticum* is a very similar species, with narrower and more pointed leaves, which are of the same color on both sides, native of w. Asia, apparently also of s. Spain. *R. Catarobiense*, 3-6 ft. high, with smooth oval leaves, rounded at both ends, native of the southern Alleghanies, with large purple flowers; *R. Caucasicum*, whose name indicates its origin; and *R. arboreum*, native of Nepaul, with very dense heads of large scarlet flowers, and leaves 4-6 in. long, attaining in its native country a height of 30 or 40 ft., also are fine species, and well known: most of the extremely numerous varieties common in gardens and shrubberies have been produced from them by hybridizing or otherwise.—Many splendid species of *R.* have recently been discovered in the Himalaya, the Khasia Hills, and other mountainous parts of India, by Dr. Hooker and others; and some of them have been introduced into Europe. *R. Falconeri* is described as in foliage the most superb of all, the leaves being 18 or 19 inches long. It is a tree 30-50 ft. high, with leaves at only the extremities of the branches. It grows in e. Nepaul at an altitude of 10,000 ft. *R. argenteum* has flowers $4\frac{1}{2}$ in. long, and equally broad, clustered, and very beautiful. *R. Muddeni*, *R. Aucklandii*, *R. Edgeworthii*, and others, have white flowers. *R. Dalhousiæ* is remarkable as an epiphyte, growing on magnolias, laurels, and oaks. It is a slender shrub, bearing from three to six white lemon-scented bells, $4\frac{1}{2}$ inches long, at the end of each branch. *R. Nuttallii* has fragrant white flowers, said to be larger than those of any other *R.* All these belong

RHODONITE—RHODORA.

to the Himalaya. In more s latitudes, as on the Neilgherry Hills and on the mountains of Ceylon, *R. nobile* is found, a timber-tree 50-70 ft. high, every branch covered with a blaze of crimson flowers.—*R. Keysii* and *R. Thibaudiense*, also natives of n. India, have flowers with nearly tubular corolla.—*R. ferrugineum* and *R. hirsutum* are small species, shrubs from one to three ft. in height, natives of the Alps, and among the finest ornaments of alpine scenery: they are called *Alpenrose* (Alpine Rose) by the Germans. They have small carmine-colored flowers in umbellate clusters, with which the mountain slopes glow in July and August; but they are not cultivated easily in gardens. The flora of the Himalaya contains a number of similar small species. *R. anthopogon* and *R. setosum*, dwarf shrubs with strongly-scented leaves, clothe the mountains in e. Nepaul at an elevation of 12,000 ft. and upward, with a green mantle, brilliant with flowers in summer. *R. nivale* is the most alpine of woody plants, spreading its small woody branches close to the ground, at an elevation of 17,000 ft. in Sikkim. *R. Lapponicum*, procumbent broadly tufted shrub, 6 in. high, with violet-purple flowers, is found on high mountains Me. to N. Y., and grows as far n. as human settlements have reached in Europe, Asia, and America.—Some species of this genus possess narcotic properties. An oil obtained from the buds of *R. ferrugineum* and *R. hirsutum* is used by the inhabitants of the Alps, under the name *Olío di Marmotta*, as a remedy for pains in the joints, gout, and stone. *R. chrysanthum*, low shrub, with golden-yellow flowers, native of Siberia, also is used in gout and rheumatism. *R. cinnabarinum*, Himalayan species, poisons goats which feed on it, and when used for fuel, causes inflammation of the face and eyes. But the flowers of *R. arboreum* are eaten in India, and Europeans make a pleasant jelly of them.

RHODONITE, n. *rō'dō nīt* [Gr. *rhodon*, a rose]: manganese spar or silicate of manganese—so named from its dark rose-red color.

RHODOPSIN, n. *rō-dōp'sīn* [Gr. *rhodon*, a rose; *opsis*, sight]: a purple substance on which images are formed in the eye; visual purple.

RHODORA, *rō-dō'ra* [Gr. *rhodon*, a rose]: genus and common name of shrubs, distinguished from Azaleas by 10 stamens, and from Rhododendrons by distinctly 2-lipped flowers, the upper lip 3-lobed, the lower 2-parted or separate. *R. Canadensis*, New England to Penn. and n., or on mountains, is a low shrub, with clusters of rose-colored flowers, sometimes white, opening before the deciduous leaves, which are whitish, downy beneath. On the Rocky and Cascade ranges there is a species, *R. albiflorum*; and a rose-colored one, *R. Californicum*, on the Pacific slope. Seedlings of a southern species, *R. Catarobiense*, or of that crossed with *R. arboreum* of Nepaul and *R. Ponticum* of Asia Minor, are hardy, and adapted to good loamy soil not impregnated with lime. A yellow-flowered species is reported to be a hurtful narcoti^c

RHODOSPERMEÆ—RHONE.

RHODOSPERMEÆ, n. *rō-dō-spēr'mē-ē* [prefix *rhodo-*; Gr. *sperma*, seed]: one of the three divisions into which *Algæ* have been divided, the two others being *Melanospermeæ* and *Chlorospermeæ*. With one or two exceptions, the species are marine.

RHOMB, n. *rŏm*, usually written **RHOM'BUS**, n. *-bŭs* [L. *rhombus*; Gr. *rhombos*, a spinning-top, a magical wheel]: quadrilateral figure whose sides are equal and the opposite sides parallel, but which has two of its angles acute and the other two obtuse (see **PARALLELOGRAM**). **RHOM'BIC**, a. *-bĭk*, shaped like a rhombus. **RHOMB-SPAR**,



Rhomb.



Rhomboid.

a variety of dolomite or crystallized magnesian limestone. **RHOM'BOID**, n. *-boyd* [Gr. *eidos*, appearance]: a four-sided figure having only its opposite sides equal, and its angles not right angles. **RHOM'BOID**, or **RHOMBOID'AL**, a. *-āl*, rhombus-like; lozenge-shaped. **RHOMBOID-OVATE**, between rhomboid and egg-shaped.

RHOMBOHEDRON, n. *rŏm'bō-hē'drŏn* [Gr. *rhombos*, a magical wheel; *hēdra*, a base]: a solid figure bounded by six planes in the form of rhombs. **RHOM'BOHE'DRAL**, a. *-drāl*, pertaining to a rhombohedron; presenting forms derived from a rhombohedron.

RHONCHUS, n. *rŏng'kŭs* [L. *rhonchus*; Gr. *rhongchos*, a snoring—from *rhengkō*, I snore]: in *med.*, an unnatural rattling or wheezing sound produced in the air-passages by obstructions.

RHONE, *rŏn*: small but important inland dept. of France, bounded n.w., and s. by the depts. Saône-et-Loire and Loire; 1,077 sq. m.; lying almost wholly in the basin of the Rhone and its great affluent the Saône, which rivers form its e. boundary. The surface is almost entirely mountainous or hilly. Of the 689,536 acres, more than one-half is under tillage. The principal productions are vines and mulberry-trees. The wines are famous for excellence. Of the Mâcon wines, grown in the n., in the former dist. of Beaujolais, the best are the fine red wines of Chenas; of those grown in the s., called *vins du Rhone*, the finest are the red wines of Côte Rôtie and the white wines of Condrieu. About 75,000 acres are in vineyards, and the amount of wine made annually is about 17,000,000 gallons. Silks (see **LYONS**) are manufactured extensively. For industries of the dept., which is divided into the two arrondissements of Lyon and Villefranche, see those titles. **Cap. Lyon**. Pop. of dept. (1881) 741,470; (1891) 806,737; (1901) 843,179.

RHONE—RHOPALIC.

RHONE (*Rhodanus* of the Romans): river rising in the Swiss Alps, on the w. side of Mt. St. Gothard, not far from the sources of the Rhine; the only important French river flowing into the Mediterranean. Its entire length, to the Gulf of Lyon at its embouchures, is 644 m.; area of its basin 28,000 sq. m. The R. is probably the most rapid river of its length in the world. It flows first s.w. through the canton of Valais, and swollen in its rapid course by several tributaries, it takes a sudden turn to the n. near Martigny, and throws its waters into the Lake of Geneva (q.v.). After issuing from the lake, it takes up the turbid stream of the Arve, and forcing its passage through a rocky gorge of the Jura chain, disappears below the rocks near Fort l'Ecluse for a length of 300 ft., forming the subterranean channel known as *La Perte du Rhone*. At St. Génis, the R. enters a less mountainous region, and passing beyond the Jura district, flows through a low valley to Lyon, where it receives the Saône. From Lyon it follows a s. direction past Vienne, Valence, Montélimart, Avignon, and Arles, bifurcating near Beaucaire and Tarascon into two main stream, Greater and Lesser Rhone, which inclose the delta known as Ile de la Camargue, and finally merge their waters with the Mediterranean. The most important affluents of the R. are, on the right, the Ain, Saône Doubs, Ardèche, and Gard; on the left, the Arve, Isère, Drôme, and Durance. From Lyon, the R. is easily navigable southward for good-sized vessels; but the up-navigation, owing to the rapid fall of the stream, and the sudden shifting of sandbanks, is difficult, and at times almost impracticable. On account of these and other obstructions, greatest near the mouths of the river, the communication with the Mediterranean is chiefly by canals, which communicating with several shore-lakes, as l'Étang de Berre and others, open a passage between the sea at Port du Bouc and the river at Arles, and thus obviate the necessity of navigating round the delta. In its upper and middle course, the R. presents beautiful and varied scenery, enriched with luxuriant southern vegetation, including grapes of superior quality, from which some of the finest wines of France are obtained; but below Avignon it passes through a broad, arid track and is bounded by swampy banks. The great natural commercial advantages of the R. have been considerably extended by numerous canals, which, joining it to the Seine, the Loire, and the Rhine, connect it with the Atlantic and the German Ocean.

RHONE, BOUCHES DU: see **BOUCHES-DU-RHONE**.

RHOPALIC, a. *rō-pāl'ik* [Gr. *rhopalon*, club which gradually becomes larger from the handle to the top]: in *prosody*, applied to a line in which each successive word has a syllable more than the one preceding it.

RHUBARB.

RHUBARB, n. *r̃hbarb* [L. *rha barb̃rum*, rhubarb; *R̃hā*, old name of river Volga, in Russia, on whose banks first found, and L. *barb̃rus*, foreign: F. *rhubarbe*], (*Rheum*): genus of plants of nat. order *Polygoneæ*, closely allied to *Rumex* (dock and sorrel), from which it differs in having nine stamens, three shield-like stigmas, and a three-winged achenium. The species, which are numerous, are large herbaceous plants, natives of central Asia, with strong, branching, almost fleshy roots; erect, thick, branching stems, sometimes 6 or 8 ft. high; stems and branches while in the bud covered with large membranous sheaths. The leaves are large, stalked, entire or lobed; the flowers are small, whitish or red, generally very numerous, in large loose panicles of many-flowered clusters. The roots are medicinal; but those of different species seem to possess



Medicinal Rhubarb (*Rheum officinale*).

their medicinal properties in very different degrees, or these properties are developed very variously in different soils and climates, or according to other circumstances not at all understood. It is not known what species of R. yields the valued R. of commerce, which comes from inland China or Chinese Tartary. Some of it reaches Europe by way of Canton, but the best is brought through Russia. It is commonly known, however, as *Turkey R.*, because it was formerly shipped from the ports of the Levant. R. is said to have been cultivated in England first in 1778, but it was not much used for the table till 1800, and did not become popular as a market crop till about 1840. It is now largely grown in temperate regions for the stalks, which contain an agreeable mixture of citric and malic acid and are used for sauce, tarts, and pies: in some localities R. is known as the Pie plant. The juice is sometimes used for manufacture of wine. The stalks of the cultivated varieties grow one to

three ft. in length, and in their widest portion have a diameter of one to three inches. R. thrives in a variety of soils, but best in one that is deep and rich. It is propagated by seeds, and by pieces of roots. The latter is the more common method when but few plants are wanted, and it gives a crop a year earlier than can be obtained from seed. In three years from seed R. will give a moderate yield, and if well manured, and not cut too closely, the plants will remain productive 15 years. Unless wanted specially for seed, all the seed stalks should be removed as soon as they appear. Plants should be set four ft. apart each way, in a rich and deeply-plowed soil, and should be kept free from weeds by frequent cultivation. R. is easily forced in cold-frames and greenhouses, and the early supply in large cities is obtained usually in this manner. Farmers and small gardeners often hasten growth and produce tender stalks by placing barrels, from which the heads have been removed, over the plants early in spring. About half a dozen varieties of R. are cultivated in the United States.

R. root (*Rheum*, *Rhei Radix*) may be briefly described as a cathartic, an astringent, and a tonic. As a cathartic, it operates chiefly by increasing the muscular action of the intestines; and when the cathartic action is over, there is generally more or less constipation, arising, as is usually supposed, from the astringent action then coming into play. In small doses it has a tonic effect. The appetite is improved, and the digestive process rendered more active, by the action of this drug. It must not be forgotten that the coloring-matter of R. passes into the serum of the blood and the secretions; and urine rendered red by its absorption has not unfrequently been confounded with bloody urine by practitioners ignorant of the very different chemical reactions of rhein and the coloring-matter of blood. Powdered R. is sometimes used as a dressing for sores. It is often adulterated with materials which greatly decrease its value. The different varieties also vary considerably in their strength and the methods of their action. Several special preparations are in use for medicinal purposes. The R. most in use in the United States is from the species Chinese or India R., Russian or Turkey or Bucharian R., and European R. The Pie R. (Pie-plant) consists of hybrids between *R. rhaponticum*, *R. undulatum*, and *R. palmatum*.

R. root is one of the best aperients for general use in infancy, because of the certainty of its action, and of its tonic and astringent properties, which are important in treatment of many infantile diseases attended with imperfect digestion and irritation of the intestinal canal. In adults, it is serviceable in chronic diarrhea and dysentery, when it is expedient to clean out the bowels. It is a useful aperient also in convalescence from exhausting disease, as being free from the risk of overacting; and for the same reason, it is a useful medicine for persons constitutionally liable to over-purgation from trivial causes.

RHUMB—RHYSIMETER.

RHUMB, n. *rŭm*, or **RHUMB-LINE** [a form of **RHOMB**: It. *rombo*; F. *rumb*, a point of the compass—in old charts marked by large lozenges or rhombs, whence the name *rhumb* is said to be given to a point of the compass]: a lozenge-shaped figure. The term was introduced, according to Vitalis, into navigation by the Portuguese, denoting at first a meridian, especially the principal meridian of a map. It then came to signify any vertical circle, whether meridian or not, thence any point of the compass. A ship is therefore said to sail on a R. when its head is kept constantly directed to the same point of the compass. The R.-line thus crosses all meridians at the same angle, and corresponds exactly to the *Loxodromic Lines* (see **LOXODROMIC**). In Mercator's chart, the R.-line is a straight line (though not so in nature); but it must be carefully noticed that equal portions of it on the chart do not indicate equal distances on the surface of the globe, the divisions which are lowest in latitude always representing the greatest distance, and *vice versâ*.

RHUSMA, n. *rŭs'ma*: in *leather-manuf.*, a mixture of caustic lime and orpiment or tersulphide of arsenic, used in depilation or unhairing of hides: see **RUSMA**.

RHYME, or **RHIME**: see **RIME**.

RHY'MER, **THOMAS THE**: see **THOMAS THE RHYMER**.

RHYNCHONELLA, n. *rĭng'kō-nĕl'la* [Gr. *rhungchos*, a beak]: genus of brachiopodous mollusca, characterized by its trigonal acutely-beaked shell, the dorsal valve of which is elevated in front, and depressed at the sides, and the ventral valve is flattened or hollowed along the centre. The genus is represented by two living species, one from the icy seas of the north, the other from New Zealand: the shells of both are black. No less than 250 species of fossil shells have been referred to the genus. They occur in all formations from the Lower Silurian upward. **RHYN'CHOLITES**, n. plu. *-lĭts* [Gr. *lithos*, a stone]: in *geol.*, fossil remains of the beaks of certain cephalopods.

RHYNCHOPH'ORA: see **WEEVIL**.

RHYNCHOPS, *rĭn'kōps*, commonly called **SKIMMER**: genus of web-footed birds of the *Laridæ* (q.v.) family, to which the gulls, etc. belong. The bill is broad at the base, but thence to the tip is laterally compressed. The upper mandible is the shorter. There are three or four species; the best known being the black Skimmer, found on the east coasts of N. and S. America, and said to be on the w. coast. It is dark brownish, black above, the front and lower portions white, the wing quills margined with white; the basal half of the bill is red, and the rest black. In all, the flight is swift and graceful; they rarely swim; and they feed, chiefly by night, on fish and crustaceans.

RHYSIMETER, n. *rĭ-sĭm'ĕ-tĕr* [Gr. *rhysis*, a flowing, a stream; Eng. *meter*, measure]: instrument for measuring the velocity of fluids or the speed of ships. It presents the open end of a tube to the impact of the current, which raises a column of mercury in a graduated tube.

RHYTHM.

RHYTHM, n. *rîthm* [Gr. *rhuthmos*, regulated, recurring, hence measured motion, proportion—from *rheein*, to flow: L. *rhythmus*: F. *rhythme*]: in its widest sense, measured or timed movement, regulated succession; specially, agreement of measure and time in prose and poetry; also in music and in motion, as in dancing. It seems to be a necessity for man if movements of any kind are to be sustained for a length of time, that some more or less strict law of interchange should regulate the succession of the parts. It is believed that the ground of this necessity may be discovered even in the structure and functions of the human body. See *Bain, The Senses and the Intellect*. More particularly, in order that a number of parts may constitute a whole, or, at all events, a pleasing whole, a certain relation or proportion must be felt to pervade them. When exemplified in the arrangement of matter into visible objects, as in sculpture, architecture, and other plastic arts, R. is usually called *symmetry*. R. applied to the movements of the body produces the *dance*. 'The rhythmical arrangement of sounds not articulated produces *music*, while from the like arrangement of articulate sounds, we get the cadences of *prose*, and the measures of *verse*. Verse may be defined as a succession of articulate sounds, regulated by a R. so definite that we can readily foresee the results which follow from its application. R. is also met with in prose; but in the latter its range is so wide that we never can anticipate its flow, while the pleasure we derive from verse is founded on this very anticipation.'

The R. of verse is marked in various ways. In Sanskrit, Greek, and Latin, during their classic periods, *quantity*, or the regulated succession of long and short syllables, was the distinguishing mark of verse. In the languages descended from these three ancient tongues, as well as in all the other Aryan languages, the R. depends on *accent*: see **METER**. The recurrence of similar sounds, or *rime*, also is used, with accent, to render certain points of the R. more distinct, as well as to embellish it: see **RIME**.—R. in *music* is the disposition of the notes of a musical composition in respect of time and measure. To R. chiefly music is indebted for its order, perspicuity, intelligibility, and consequently its power and effect. The rhythmical value of a musical sound is the ratio which its duration bears to that of other sounds: see **NOTE**. A musical composition is made up of portions of equal rhythmic value, called *measures*, separated by vertical lines called bars, the length of the measure being indicated by a sign at the beginning of the movement. For the varieties of time and their signatures, see **MUSIC**. The first note in each measure is distinguished by a greater force or stress than the rest: that stress is called *accent*, and of the four measure-notes in common time the third has also a subordinate accent, as has the third measure-note in triple time. There is also an irregular or rhetorical accent in music called *emphasis*, which may be laid on any part of the measure, and whose use is regulated by taste and feeling. **RHYTHMIC** a. *rîth'mik*, or **RHYTH'MICAL**,

RHYTHMICAL DISEASES—RIAD.

a. *-mĭ-kāl*, pertaining to rhythm; having rhythm; harmonical; in *mea.*, denoting the regular healthy discharge of the functions of an organ, e.g., the pulsations of the heart: also, see RHYTHMICAL DISEASES. RHYTH'MICALLY, ad. *-lĭ*.

RHYTHMICAL DISEASES: certain periodically recurrent morbid affections; of which some become aggravated or mitigated at particular hours; others appear in paroxysms, to a certain extent of regular duration and recurrence; and a third class is named quotidian, quartan, etc., from the precise and unvarying periods of their returns. The element of time, and of regular intervals of time, is chiefly characteristic of morbid conditions of the nervous system. In chorea and involuntary shrieking, singing, etc., a rhythm may often be detected, of which the patient is altogether unconscious. Not merely have movements of the eyelids and of the limbs presented perfectly timed succession, but cases are recorded where the wild gesticulations and jactations of St. Vitus's Dance have been regulated to correspond to popular airs. A person has been known to strike his breast with the hand for hours with the same exactitude as if measured by a time piece. Those affected with Tarantism are prompted to dance by the sound of music; and their movements are determined, it is affirmed, not by volition, but by the cadences of the tunes played in their hearing. The victims of the dancing mania in the 15th c. were similarly affected. In many forms of insanity there is seen a tendency to riming in words, as well as to rhythmical movements. A patient for three consecutive days vociferated incessantly words terminating in *-ation*.—Laycock, *Nervous Diseases of Women*, 185, 314; Sauvage, *Nosologia Methodica*, II. 231; *Medical Critic*.

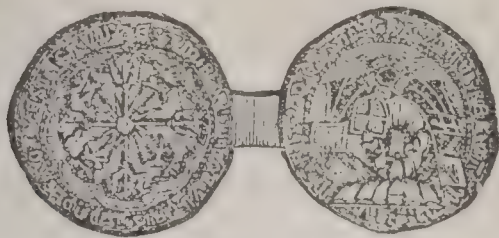
RHYTHMOMETER, n. *rĭth-mōm'ĕ-tēr* [Gr. *rhuthmos*, measured motion; *metron*, a measure]: an instrument for marking time to movements in music.

RHYTINA STELLERI, *rĭt'ĭ-nâ stĕl'ĕr-ĭ* (improperly *borealis*): monster that became extinct in the 18th c.; belonging to the singular herbivorous order *Sirenia*, 'sea-cows,' closely related to whales, but in some features of skull, dentition, and habit, like Ungulates. Living representatives of the order, the Manatees (q.v.) of Fla. and s. to the Amazon, and (another species) on the w. coast of Africa, and the Dugongs (q.v.) of the Indian Ocean, are 8-10 ft. long, sometimes 20 ft., and have true teeth; but the Rhytina, otherwise called Stellerine, was 25-35 ft. long, and 20 ft. circumference, and had only a horny palatine plate, with a corresponding one on the front of the lower jaw, in place of teeth. It was discovered 1741 by Behring (q.v.) on an island named after him; and it was described by Steller, whose name it bears. The herds were rapidly exterminated by sailors, the last having been seen 1768. A few bones are preserved at St. Petersburg.

RIAD, *rĕ-ād'*, or RIYAD, *rĕ-yād'*: city, cap. of the Wahabite kingdom: see WAHABIS.

RIAL, n. *rē'al*: see REAL 2.

RIAL, n. *rī'al* [an old spelling of ROYAL]: a royal—a



Gold Rial of Mary.

gold coin at one time current in Great Britain, varying in value from ten to thirty shillings.

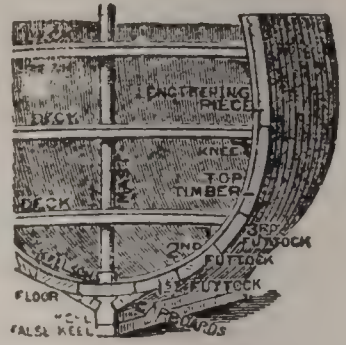
RIANT, a. *rī'ant* or *rē'ōng* [F. *riant*, smiling—from L. *ridens* or *riden'tem*, laughing; *ridere*, to laugh]: in OE., laughing; exciting laughter.

RIAZAN, *rē-ā-zān'*: central govt. of Great Russia, extends s.e. from the govt. of Moscow; 16,221 sq. m. The principal river is the Oka, which, after forming the boundary between the govts. of Moscow and Tula, and part of the boundary between Moscow and R., flows s.e. to the middle of R., then turning n., disappears across the border on the n.e. The Oka divides the govt. into two unequal parts, of which the n. is low in surface and sandy in soil, while the s. has an elevated surface and a most fertile soil. The Don crosses the s.w. of R., but is not here navigable. The chief products are iron ores, limestone, wheat, oats, rye, millet, buckwheat, and vegetables. There are many remarkably good studs of horses. Though the chief occupations are agriculture and horticulture, there are important industrial establishments, e.g., needle, cloth, and glass factories; cotton-mills, iron-works, tanneries, and soap and tallow works. Manufactured goods and corn are exported.—Pop, (1886) 1,867,126; (1897) 1,827,539.

RIAZAN': town of Great Russia, cap. of the govt. of R.; on a branch of the Oka, near its junction with that river, 130 m. s.e. of Moscow. It was founded 1208, became 1487 the residence of the princes of R., and was made chief town of the govt. of R. 1778. The chief fragment of antiquity is the interesting old fort called the Kreml. There is a ferry here across the Oka, at which the products of the vicinity are shipped: 5,770,000 bushels of corn are exported annually. Pop. (1890) 30,270; (1897) 44,552.

RIB, n. *rīb* [Dut. *ribbe*, a rib, a beam: Ger. *rippe*, a RIB: AS. *ribb*, a rib]: one of the curved bony hoops or bars which protect the lungs, heart, etc. (see RIBS). In *arch.*, one of the curved timbers in an arched roof to which the laths are nailed; also, a projecting band or molding on an arched or flat ceiling. It is of universal use in all styles of Gothic architecture; the early Norman examples are simple square bands crossing the vault at right angles, the groins being plain angles. In early English also, the groins and ridge are ribbed, and all the ribs are molded. The

ribs and their moldings are multiplied as the style advances, till the whole surface becomes covered with them in the Fan-tracery Vaulting (q.v.). Plaster ceilings are sometimes elaborately ornamented with patterns formed by ribs, especially in the styles of the times of Elizabeth and James I. In *bot.*, the central longitudinal nerve or vein of a leaf; in a *ship*, one of the curved timbers which give form and strength to its side: something long, thin, and narrow: jocular term for a wife: V. to furnish or surround with ribs; to form with rising lines or ridges, as cloth. RIB'-BING, imp. RIBBED, pp. *ribd'*: ADJ. furnished with ribs; in *bot.*, a term applied to a leaf having strongly marked nerves or veins. RIBGRASS, or RIBWORT, very common species of plantain—the *Plantago lanceolâ'ta*, often found in meadows (see PLANTAGINÆÆ). RIBROAST, v. *rib'rôst*, to beat soundly; to thrash. RIB'ROASTER, n. a smart or severe blow, especially with a riding whip. TRUE RIBS, the seven ribs which are attached to the sternum or breastbone, as distinguished from the FIVE FALSE RIBS, which are not so attached; the last two false ribs are called FLOATING RIBS, because they are not attached to anything in front: see RIBS.

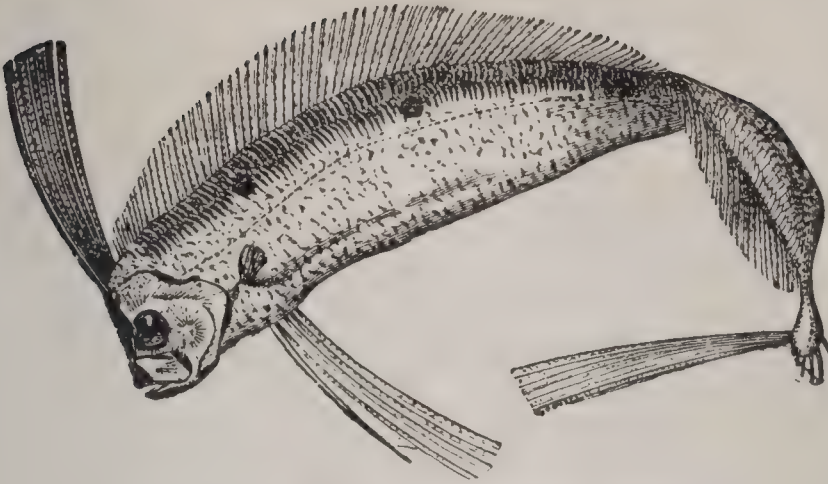


Rib.

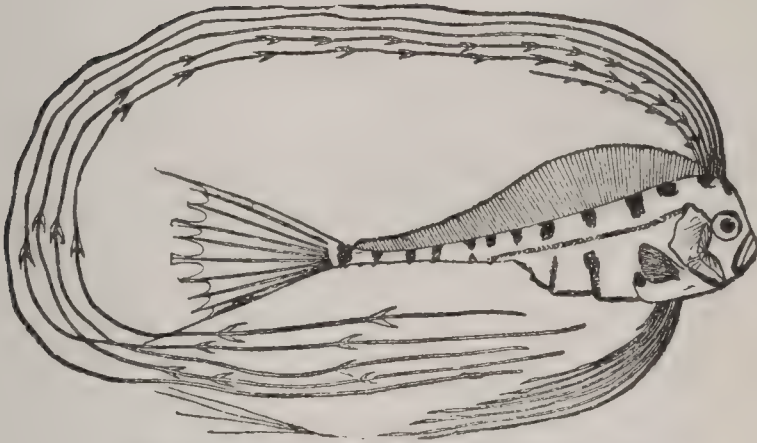
RIBALD, a. *rib'ald* [OF. *ribald* or *ribauld*; It. *ribaldo*, any loose character: mid. L. *ribalda*, a loose woman: Dut. *rabaud*, a worthless fellow: Gael. *raip*, debauchery]: low; base; filthy; obscene: N. a low, vulgar, foul-mouthed creature. RIB'ALDRY, n. *-ald-rĭ*, mean, vulgar, or obscene language; lewdness. RIB'ALDROUS, a. *-rĭs*, containing ribaldry. *Note.*—The American term *rowdy* is exactly synonymous with OF. *ribauld*.

RIBAND, RIBBAND, n. *rib'and*: see RIBBON.

RIBAULT, *re-bô'* (or RIBAUT), JEAN: navigator: 1520–65 Sep. 23; b. France. He came to this country in charge of two ships 1562, explored the s. Atlantic coast, cast anchor at Port Royal, and near the present site of Beaufort, S.C., erected a building named Fort Charles. Leaving 26 members of his party, he sailed to France, intending soon to return. The civil war prevented his leaving for some time, and in his absence, the settlement was abandoned. Meanwhile a colony of French Protestants had located on the St. John's river. R., with 7 ships, reached the coast 1565 and took charge of the settlement. Soon afterward a Spanish force, which had been sent to destroy the Protestants, appeared and R. sailed for St. Augustine, but his fleet was wrecked in a storm. The Spanish leader (see MENENDEZ DE AVILES, PEDRO) had seized the French fort and massacred many of the people. He also surprised and killed R. and most of the party with him who were on their way to the settlement.



Ribbon Fish (*Trachipterus taenia*).



Ribbon Fish (Young *Trachipterus*).



Rhino-plastic Operation.

RIB-BAND, n. *rib'bānd* [compounded of *rib* and *band*]: a long, narrow, and thin piece of timber nailed upon the outside of the ribs of a ship from the stem to the stern-post, or nailed to the timbers of a square body, under which shores are fixed.

RIBBON, n. *rib'ōn*, or **RIBAND**, or **RIBBAND**, n. *rib'and* [F. *ruban*, a ribbon: Gael. *ribean*; Ir. *ribin*, a ribbon: W. *rhibin*, a streak—from *rhīb*, a streak]: a narrow web of silk or other texture—generally used as trimming for some part of a lady's attire (see **SILK**: **SILKWORM**): a long narrow strip of anything: in *her.*, a diminutive of the ordinary called the **Band**, of which it is one-eighth in width. **RIBBONED**, a. *-ōnd*, adorned with ribbons. **RIBBONISM**, n. *-ōn-izm* (see below). **RIBBONMAN**, a member of the secret society in Ireland holding the principles of Ribbonism. **RIBBON-JASPER**, a variety of jasper, exhibiting colors of various shades, and arranged in stripes of parallel layers. **BLUE RIBBON**, a term used to designate the highest order of British knighthood—viz., the order of the Garter—so called from the color of the ribbon by which the badge is suspended; the symbol of the highest degree of excellence. **RED RIBBON**, the order of the Bath—so called from the color of the ribbon which suspends the badge; a symbol or badge of the second degree of excellence. *Note.*—**RIBBON** or **RIBBONISM**, is probably a mere corruption of OE. *ribald* [see **RIBALD**], a word used to designate the humblest class of foot-soldiers in the composition of the armies of former times, and thus applied to the soldiers of the army of James II. as an opprobrious epithet, or to his partizans: OF. *ribauld*, a loose brutal character. Dut. *rabaud*, a rascal: the supposed origin from some distinguishing badge or piece of bunting is not so probable.

RIBBON-FISH: popular name of a family of acanthopterous fishes, called *Teniidæ*, or more properly *Tenioidæ*, by naturalists [from *tenia*, a tape-worm], on account of their compressed and elongated form. Notwithstanding their peculiarity of form, they are nearly allied to the *Scomberidæ*, or Mackerel family. They are of very delicate structure, with naked and silvery skin, long dorsal fin often uniting with the tail-fin, small mouth, and protractile snout. They are widely distributed from polar to tropical seas, but are nowhere found in abundance, being deep-sea fishes, and only occasional visitants of the coasts. The delicacy of their frame prevents perfect specimens from being often obtained. Species exist nine or ten ft. long, not six inches deep, and scarcely an inch thick. See **BAND-FISH**; **DEALFISH**: **GYMNETRUS**.

RIBBONISM: system of secret associations among the peasantry in Ireland, the objects of which have long been a subject of suspicion and of controversy. The origin of the associations known under this name is obscure. From the middle of the 18th c., secret organizations, variously designated, but mostly connected with agrarian discontent, have arisen in Ireland. The earliest appears to have been that of the Whiteboys, about 1759. Later, the fierce and sanguinary strife to which the relaxation of some of the

penal laws under which the Rom. Catholics had long suffered gave occasion in the north, and which resulted in the Prot. Orange organization (see ORANGEMAN), led to the Rom. Cath. counter-organization, the Defenders; but this assoc. seems to have been for the time purely local in Armagh, and the neighboring counties in which the violences of the Prot. party had originated. The severely repressive measures adopted by the govt. on the outbreak of the rebellion of 1798, and their continuance for several years, prevented any notable progress of the Rom. Cath. organization; and when at length, about 1806, such an organization was initiated (then called the 'Threshers'), it was with the utmost secrecy. The associations called (it is supposed from the badge worn by the members) by the name of Ribbon societies appeared first about 1808, and originated in Armagh, whence they spread to Down, Antrim, Tyrone, and Fermanagh. Their real object was doubtless combined action, partly for self-defense, partly also probably for directly counteracting the wide-spread and formidable Orange confederacy. Their operations from the first were usually limited to the counties, chiefly in the n. and n.w., in which the Orange associations were formidable; nor do they appear at any time to have had a footing in the purely Rom. Cath. counties, where there were few or no Orangemen to be encountered. The secret associations of the other districts—the midland, s., and s. e. counties—were due mainly to discontents arising from alleged agrarian and social grievances.

The Ribbon Assoc. also addressed itself to the same agrarian and social grievances; but its direct object was antagonism to the Orange confederation, to which it bore considerable resemblance. The Ribbon Association was divided, like the Orange, into lodges, and the members of each lodge were bound by a secret oath to 'be true to each other,' and 'to assist each other in all things lawful;' and they were known to each other by secret signs and passwords. But they seem to have lacked the complete scheme of a 'Central Grand Lodge,' with its subordinate hierarchy of 'county,' 'district,' and 'private' lodges, which characterized the great rival confederation. The Ribbon societies consisted exclusively of the very lowest classes, the humbler peasantry, farm-servants, and operatives of the least intelligence. No trace appears among them of what is so striking in the Orange Association—the co-operation, or even the countenance, of the gentry, the clergy, the commercial class, hardly even of the farming class, except a few of the sons of farmers of the lowest grade; and an asserted connection of the Rom. Cath. clergy with them was officially and completely disproved 1839.

The present number of these societies in Ireland is not known: they come to light on every occasion of party-strife; but they appear to have been replaced in several parts of the country by newer associations, such as the 'Phenicians,' the 'Brotherhood of St. Patrick,' and the 'Fenians.' See FENIAN.

RIBEAUVILLE—RIBES.

RIBEAUVILLE, *rē-bv-vēy'* (Ger. *Rappoltsweiler*): small manufacturing town of Alsace, pleasantly situated amid vineyards, 34 m. s.s.w. of Strasburg. Excellent wines are made, and cotton goods are manufactured. The town is overlooked by the Vosges Mts., along whose crests runs a wall or rampart, built of unhewn stones without cement, eight to ten ft. high. It is of unknown antiquity, and is called the *Heidenmauer*, or Pagan wall.—Pop. (1880) 6,013.

RIBERA, *re-vā'rá*, **JUSEPE** (in Italian, **GIUSEPPE**), commonly called **LO SPAGNOLETTO** ('the Little Spaniard'): 1588, Jan. 12—1656; b. Xativa, near Valencia. He studied a few years with Francesco Ribalta, a Spanish painter of eminence; visited Italy; studied at Rome and other cities; then went to Naples, where, attracted by the novelty and boldness of Caravaggio's style, he adopted it, and ultimately became the ablest painter among the *naturalisti* or artists whose treatment of subjects was based on a vigorous and powerful, but generally coarse and vulgar representation of nature, in opposition to that formed on conventional or academic rules. He settled in Naples, where he lived at first in poverty, till his ability was discovered by a rich picture-dealer whose daughter he married, and who exhibited R.'s *Martyrdom of St. Bartholmew* to admiring crowds. He became court-painter, and executed numerous important commissions in Naples; and there his best works are seen. Salvator Rosa and Guercino were among his pupils. He executed 18 or 20 etchings, all marked by force and freedom. R.'s beautiful only daughter—whose abduction by Don John of Austria is by mistake reported by some writers—married a Spanish nobleman.

RIBES: see **CURRENT**: **GOOSEBERRY**.

RIBS.

RIBS, *ribz*: elastic arches of bone, which, with the vertebral column behind, and the sternum or breastbone in front, constitute the osseous part of the walls of the chest. In man, there are 12 ribs on each side. The first 7 are more directly connected through intervening cartilages with the sternum than the remainder, hence they are termed *vertebro-*

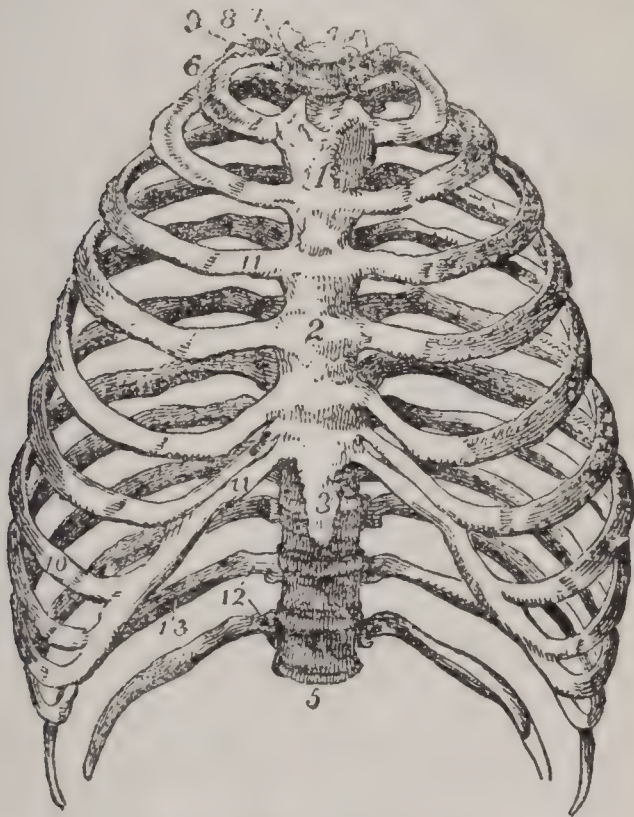


Fig. 1.—The Ribs, *in situ*.

1 and 2 are the upper and middle parts of the sternum or breastbone; 3, its ensiform cartilage; 4, the first dorsal, and 5 the last (or twelfth) dorsal vertebra; 6, the first rib; 7, its head; 8, its neck, resting against the transverse process of the first dorsal vertebra; 9, its tubercle; 10, the seventh or last true rib; 11, the costal cartilages of the true ribs; 12, the last two false ribs or floating ribs; 13, the grooves along the lower border of the ribs (from Wilson's *Anatomist's Vade-Mecum*.)

sternal or *true* ribs; while the other 5 are known as *false ribs*, and the last two of these, from being quite free at their anterior extremities, are termed *floating ribs*. A glance at a skeleton, or at a plate representing the articulated bones, will show that the ribs vary considerably in direction and size. The upper ribs are nearly horizontal, but the others lie with the anterior extremity lower than the posterior; this obliquity increasing to the 9th rib, then slightly decreasing. They increase in length from the first to the eighth, then diminish. The spaces between the ribs are termed *intercostal spaces*. On examining a rib taken from about the middle of the series, we find that it presents two extremities (posterior or vertebral, and anterior or sternal), and an intervening portion termed the body or shaft. The posterior extremity presents a head, a neck, and a tuberosity. The head is marked by two concave articular surfaces divided by a ridge, the lower facette being the larger. These surfaces fit into the cavity formed by junction of two contiguous dorsal vertebræ, and the

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ridge serves for attachment of a ligament. The neck is a flattened portion proceeding from the head; it is about an inch long, and terminates at an eminence termed the tuberosity or tubercle, whence the shaft commences. On the lower surface of this tubercle is a small oval surface, which articulates (see fig. 2) with a corresponding surface on the upper part of the transverse process of the lower of the two contiguous vertebræ. The shaft presents an external convex, and an internal concave surface. A little in front of the tubercle, the rib is bent inward, and at the same time upward, the point where this bending takes place being called the angle. The upper border of the rib is thick and rounded, while the lower border is marked by a deep groove, which lodges the intercostal vessels and nerve.

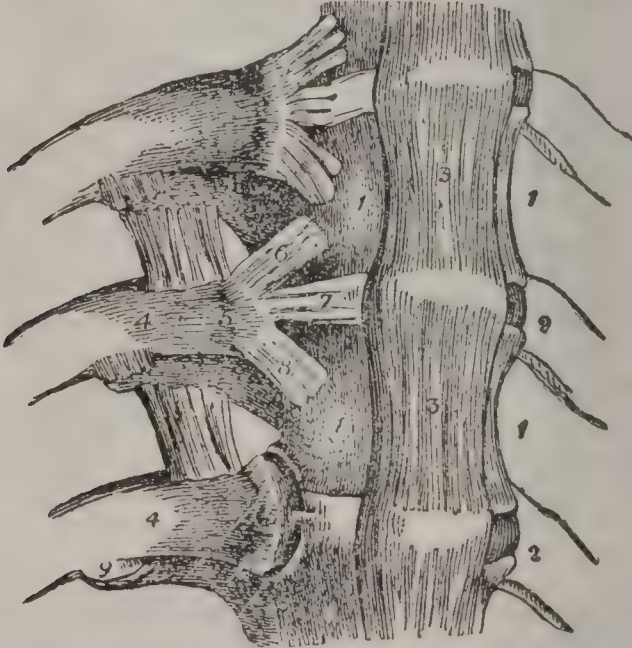


Fig. 2.—A Front View of the Articulations of the Ribs with the Spinal Column:

1, 1, Dorsal vertebræ; 2, 2, intervertebral cartilages; 3, 3, the anterior common ligament, extending like a ribbon along the whole of the front of the vertebral column; 4, the neck, and 5 the head of rib; 6, 7, 8, three flat bundles of ligamentous fibres, radiating from the head of the rib to the adjacent vertebræ and interveterbral substances (they are removed in the lowest rib, seen in the figure); 9, the articulation between the tubercle of the ribs and the transverse vertebral process (from Gray's *Anatomy*).

The ribs of Mammals are mostly connected, as in man, with the bodies of two vertebræ, and with the transverse processes of the posterior one. In the Monotremata, however, they articulate with the vertebral bodies only; while in the Cetacea, the posterior ribs hang down from the transverse processes alone. Their number, on each side, corresponds with that of the dorsal vertebræ. The greatest number, 23, occurs in the two-toed sloth, while in the Cheiroptera, 11 is the ordinary number. In Birds, each rib articulates by means of a small head with the body of a single vertebra near its anterior border, and with the corresponding transverse process by means of the tubercle. Moreover, each rib possesses a 'diverging appendage,' which projects backward over the next rib, so as to increase the consoli-

dition of the thoracic framework, necessary for flying. The dorsal vertebræ here never exceed 11, and are usually 7 or 8 in number; and the ribs proceeding from them are connected with the sternum, not by cartilage, as in Mammals, but by true osseous sternal ribs, regularly articulated at one end with the sternum, and at the other with the termination of the spinal ribs. In the Chelonian Reptiles, the ribs (as well as the vertebra and the sternum) deviate remarkably from the normal type, the lateral parts of the carapace consisting mainly of anchylosed ribs united by dermal plates. In the Crocodiles, there are only 12 pair of true or dorsal ribs; while in the other Saurians, and in the Ophidians, the ribs are usually very numerous. In the Frogs, there are no true ribs; the reason probably being, that any bony element in their thoracic walls would interfere with the enormous thoracico-abdominal enlargement which these animals periodically undergo at the breeding period.

In the language of the transcendental anatomists, a rib is to be regarded as a *Pleurapophysis*—one of the elements of a typical Vertebra (q.v.).

FRACTURE OF THE RIBS is a frequent result from blows or falls on the chest. Ribs may, moreover, be broken by mere pressure, as when persons are severely crushed in a crowd; and instances are on record of fracture in aged persons by violent coughing. The treatment consists in application of a broad flannel roller round the chest, so tightly as to prevent, as far as possible, all movement of the ribs, and to render the respiration abdominal rather than thoracic. The bandage must be prevented from falling by addition of shoulder-straps; and to prevent the shoulder-blade from moving, and thus disturbing the broken ribs, some surgeons confine the arms to the side of the body. If one or both of the extremities of the fractured rib should perforate both the pleuræ, and wound the lung, air escapes in the act of inspiration from the lung into the pleural cavity, and thence through the wound in the costal pleura into the cellular or areolar tissue of the trunk, giving rise to *emphysema*, in the form of a soft puffy tumor, that crepitates and disappears on pressure.

RIBWORT: see under **RIB**.

RICA, n. *rī'ka* [L. *rica*, a veil thrown over the head]: the ceremonial veil worn by ladies in Greece and Rome on occasions of religious solemnity.

RICARDO.

RICARDO, *rē-kār'do*, DAVID: eminent political economist and statesman: 1772, Apr. 19—1823, Sep. 11; b. London; of Jewish extraction. His father, a respectable member of the stock exchange, brought him up to his own business. There was alienation between them on account of the son marrying out of the Jewish persuasion, and conforming to Christianity. Young R. practiced as a broker in the exchange until 1818, where his ability and integrity opened for him a successful career, so that at the age of 25 he was rich. While thus practically occupied, he was ardently investigating the first principles of political economy, to which his attention had been turned by perusal of Adam Smith's great work, 1799: especially the finance department drew his attention. In 1810 he produced a notable sensation by his pamphlet *The High Price of Bullion, a Proof of the Depreciation of Bank-notes*. The title was a condensation of the principle worked out in the treatise, which gave one of the earliest distinct announcements of the principle of a metallic basis, and the propensity that a paper currency always has to redundancy, if it be not in some form or other restrained by the operation of such a basis. This was followed by several pamphlets, each commanding attention and exerting influence. In 1817 appeared his principal work, *On the Principles of Political Economy and Taxation*. He had previously in one of his pamphlets touched on the most important feature of this work—the elucidation of the true theory of rent, as being not incidental and casual, like the profits of stock, but a fund that must, under certain conditions of population, come into existence, whoever may draw it (see RENT). It is usual to call the theory by the name of Ricardo; but he distinctly ascribes it to Malthus; and it is now recognised that the elements of the theory were given in *The Bee* by Dr Anderson (see ANDERSON, JAMES). R.'s work is considered one of the clearest and least tedious of all the earlier books on political economy; and undeniably it supplies a valuable series of statements; but it has been criticised in the clearer light of recent days and by a larger experience, as narrowing the influence of the elements from which the world's riches may be increased, and especially as identifying the interest of the capitalist class with the interest of the whole nation—an ethical mistake common to R.'s time, which invalidates to some extent whole libraries of elaborate economic science.

In 1819 R., having retired from business and become a large landed proprietor, entered parliament, where his influence contributed to establish the policy of free trade. His clear method of announcing a principle, and his great success in business, combined with his singularly estimable character for candor, modesty, and generosity, to give him perhaps more influence in all matters of trade and money than those of any other member in the present century. He was a zealous student of geology, chemistry, and other sciences. He died, greatly regretted, at his place in Gloucestershire.

R.'s mind was acute rather than broad. His view of

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social problems seems narrow. He develops the mechanical theory of human society—magnifying the selfish principle as practically the controlling factor in all political economy and in all human life—an utter misconception which his own personal excellencies should have taught him to avoid. His system is devoid of sympathy with the working-classes: men are pawns: he frames his hypothesis in accordance with his view of the ‘economic man’—that monstrous figment, set forth as so real by successive writers on economics, but never yet seen alive on the face of the earth. In many special departments R.’s conclusions or suggestions have much value, e.g., in finance and currency; but his broader generalizations are not in harmony with the more ethical and vital principles of the day that has since dawned.

RICASOLI, *rē-ká'zō-lē*, BETTINO, Baron: Italian statesman: 1809, Mar. 9—1880, Oct. 23; b. Florence; descended from a very ancient Lombard family, which established itself in Tuscany in the 13th century. R. studied at Pisa and Florence; and early was stirred with a desire to ameliorate the condition of his country; but being averse to revolution, he quietly subsided into one of the best agriculturists in Italy, wrote works on the cultivation of the vine, of the olive, and of the mulberry, and gained for his wines of Chianti the cross of the Legion of Honor. Joining with other Tuscan gentlemen, after the defeat of Novara, he overthrew the govt. of Guerrazzi, and recalled the grand duke, trusting to the constitutional promises given by the latter. Leopold returned, accompanied by the Austrians; and R., indignant at this treachery, sent back his decoration to the prince, and shut himself in his castle of Brolio. For ten years he worked successfully at the drainage of the Tuscan Maremme (q.v.). In 1859, when Tuscany wished to take part in the war of Italian independence, R. reappeared. The grand duke fled, and R. was made dictator of Tuscany. After Villafranca, he remained alone in the government, beset by the French emissaries, who were advising him to recall Leopold II. R. fiercely refused to do so; he wished the annexation to Piedmont; and his obstinacy saved Italy, and produced the unity of the Peninsula. On the death of Cavour (1861), R. was called to the ministry, and by another abrupt and decided act, he promulgated political and administrative unity. His cabinet, undermined by Rattazzi, did not stand; he therefore resigned 1862, Mar. In 1866 he returned to power, retiring 1867 in ill health.

RICCI, *rèt'chê*, MATTEO: eminent Jesuit, founder of modern Christian missions to China: 1552, Oct. 6—1610, May 11; b. Macerata, in the Marches of Ancona. After studying law at Rome, he entered the Society of Jesus 1571. Six years later, he accompanied to India Père Valignan, 'Inspector-general of the Eastern Missions.' On account of R.'s fine combination of zeal and tact, he was chosen by his superior to introduce the Christian religion into China, and after preparing himself for the undertaking by a study of the Chinese language at the Portuguese settlement of Macao, he sought entrance into the empire. But his first efforts were vain, and it was not till 1583 that the Jesuit Fathers obtained permission to settle at Tchao-king-fu. R. in his efforts for converting the Chinese, sought to accommodate himself to their intellectual tastes and beliefs; and aware how highly the mandarins estimated literary skill, he executed and published a Chinese *Map of the World*, and also a little *Catechism*, in which he set forth only such portions of Christianity as embody the general principles of morality, withholding those portions which directly concern Christ Jesus—a fact which probably explains the bitter attacks on R.'s theology years after his death. These two productions won R. a high reputation among the Chinese *litterati*; the most illustrious mandarins came to visit him, and expressed their esteem for his character and talents. In 1595 he boldly resolved to go to Peking, believing that he could accomplish far more as a religious propagandist in the metropolis than elsewhere. Having obtained permission from his superiors to assume the dress of a Chinese scholar, he set out in the train of a mandarin, who did not allow him, however, to proceed further than Nanking. Expelled thence, he was obliged to return homeward; but at Nan-tchang-fu, the indomitable and adroit priest composed two treatises, entitled the *Art of Memory*, and a *Dialogue on Friendship*, in imitation of Cicero, which so pleased the taste of the Chinese, that they ranked them with their most esteemed books, and the fortunate author was allowed to proceed north. He reached Peking, and was permitted to fix his residence at Nanking, the second city in the empire, where his fame as a scholar increased from day to day. In 1600 he and his companions were allowed to settle at Peking, and even to build a church. He spent the remainder of his life in teaching mathematics and other sciences, in writing works secular and religious, and in using his great influence with the king, the court, and the learned classes generally to obtain a favorable attention to the claims of his religion. R. made several striking conversions, and through his zeal, missionary establishments were set up in the principal cities of China. At his death he was universally mourned. In the annals of the Chinese Empire, he is designated sometimes *Li-ma-teou*, and sometimes *Si-thaï*. The most important (for us) of his numerous writings are his *Memoirs*, published by Père Trigault, under the title of *De Christiana Expeditione apud Sinas suscepta ab Societate Jesu, ex M. Riccii Commentariis Libri V.* (Augsb. 1615; Lyon 1616),

RICE.

RICE, n. *rīs* [F. *riz*; It. *riso*, rice: L. *ory'za*; Gr. *oruzā*; Ar. *aruzz*, rice]: a well-known grain, only produced in warm climates and from a moist soil; the *Ory'za satīva*, ord. *Gramin'ēæ*. **RICE'-BIRD**, n. the Bobolink (q.v.). **RICE'-FLOUR**, ground rice for puddings, etc. **RICE'-GLUE**, n. cement said to be made in Japan by mixing rice-flour with cold water, and boiling the mixture. It is white, becomes nearly transparent, and is useful for cementing paper in layers. **RICE'-GRAINS**, n. in *astron.*, certain forms of what may be bright clouds floating in the sun's atmosphere, with a dark background. **RICE'-PAPER**, a paper prepared from the pith of a certain plant, and brought from China—the *Tetrapanax papyrif-ērūm*, ord. *Araliācēæ*. **RICE'-TENDRAC**, n. in *zool.*, *Oryzorictes hova tetradactyla*, an insectivorous mammal described by Grandidier 1870. It is somewhat smaller than a hedgehog, grayish brown in color, and having the snout prolonged into a short trunk. Its damage to rice-crops is due doubtless to its burrowing in pursuit of worms and insects. **RICE'-TROOPIAL**, n. the same as **RICE-BIRD**. **RICE'-WEEVIL**, n. in *entom.*, *Calandra oryzae*, an insect which attacks the rice-plant in the southern states: called also *Sitophilus oryzae*.

RICE (*Oryza*): genus of grasses, having panicles of one-flowered spikelets, with two very small pointed glumes; the florets compressed, the paleæ strongly nerved, awned or awnless, six stamens, one germen, and two feathery stigmas. The only important species is the **COMMON R.** (*O. sativa*), one of the most useful and extensively cultivated of all grains, supplying the principal food of nearly one-half of the human race. It seems to be, originally, a native of the E. Indies, but is now cultivated in all quarters of the globe. It is adapted to tropical and sub-tropical climates, rather to the latter than the former. R. is an annual, from one ft. to six ft. in height. There are many distinguishing characters of the varieties in cultivation: some having long awns, and some being awnless; some having the chaff (*paleæ*), when ripe, yellow, white, red, black, etc. The seed or grain of R. grows on little separate stalks springing from the main stalk; and the whole appearance of the plant, when the grain is ripe, is intermediate between that of barley and of oats. Some varieties of R. require a moist soil, sometimes flooded; and its cultivation has in many places been attended with increase of intermittent fevers, and of general unhealthfulness, the rice-fields being artificially flooded at certain seasons. The cultivation is most extensive in India, China, Cochin-China, and other s.e. parts of Asia, in Japan and Egypt, and in the southern states of this country. Small quantities are grown in s. Europe. Like most cultivated plants, R. is very liable to variation; and 50 or more known varieties are cultivated, of which the Carolina R., largely grown in the United States, is the best.

R. is known in India as *Paddy*. Another use of this name is to designate R. in the husk. In China R. is

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generally sown thickly on very wet land, and afterward transplanted to the land which it is finally to occupy. The plants *tiller* or spread at the root very much, so that each sends up several stalks. The rice-grounds are carefully kept clear of weeds, though often so wet that a man cannot walk in them without sinking to the knees. In many parts of China, and in other warm countries, it is common to obtain two crops of R. in a year.

R. contains a smaller amount of *flesh-forming* substances, and a larger amount of *fat-forming* or *heat-giving* substances, than any other grain. As a food, it is peculiarly well adapted for hot climates, as it appears to be almost a cure for dysentery and other bowel complaints,



Rice (*Oryza sativa*).

Independently of which it is a sufficiently nutritious food without being heating. Owing to the small quantity of gluten which it contains, it is capable by itself of only an imperfect fermentation, and is unfit for being baked into bread. It is, however, subjected to fermentation in many countries. The beer made from R. by the Japanese is called *Saki*, and is in general use among them; but before being drunk, it is heated in kettles. Several kinds of *Rice-wine* are made by the Chinese, some of them very intoxicating. A spirit is distilled from the lees, called *Shou-choo* or *Sam-choo*. The common Arrack (q.v.) of the East is made from rice, and rice is used largely also by distillers in western countries.

RICE.

The lowland varieties are grown by the 'water-culture' or irrigation system. Many of the fields adjoin rivers whose waters are kept back by levees, through which the planter makes openings, known as flumes, which are closed by gates. The water is conducted through the fields in canals which are supplied with dams, so that the surface can be flooded to any required depth. The deposits of alluvial matter supplied by this system tend to prevent exhaustion of the soil. The ground is plowed to a depth of 5 or 6 in., and the surface pulverized by harrowing. The season for sowing is from the last of March till the first of June, varying somewhat with the locality. The seed is sown in drills at the rate of about two bushels per acre, or three bushels are sown broadcast. Some growers cover the seed with soil, others allow it to remain on the surface: in either case water is turned on till the ground is covered to a depth of 15 to 18 in. After the seed has germinated, the water is withdrawn, but it is turned on again when two leaves have appeared, and is allowed to remain for 7 to 10 days, when it is lowered so that the upper leaves will float over the surface. At this height the water is kept for several weeks, but is freshened by frequent changes. The only cultivation required is to pull up whatever weeds and aquatic plants may appear. As the stage of maturity approaches, indicated by the filling of the heads and the turning of the straw to a yellow shade, the water is drawn off; the stalks harden, and the ground dries, thus facilitating the work of harvesting. On good land the stalks reach a height of 4 to 6 ft., and are cut about 15 in. from the ground. When the stalks have dried for a day or two, they are bound in bundles and put in small stacks. After the crop is removed, the ground should be subjected to several light floodings, to kill the 'volunteer' R. and any weeds which may appear. Threshing does not remove the inner hull of the grain. For this purpose special and expensive machines are required, and the work is often done at large factories. The small and the broken grains are separated from the large ones, which form only about half the entire quantity: this is done by means of machines, fans, and screens.—Upland R. is grown in drills and is kept free from weeds by cultivation. It yields 15 to 40 bushels per acre. Good lowlands, properly irrigated, yield 40 to 80 bushels per acre, and $1\frac{1}{2}$ to 3 tons of straw. Clean R. weighs 45 to 48 lbs. per bushel. Most of the lowland R. is grown on fields which would not produce ordinary farm-crops. In the Atlantic states the cultivation of the lowland R. is very unhealthful, but it is not found as injurious in the Mississippi valley. R. was introduced into S. C. by accident. A disabled ship from Madagascar found refuge in Charleston 1694, and the capt., as a token of appreciation of the kindness that he received, gave one of the citizens a sack of the grain. This was planted, and thus was laid the foundation of an extensive industry.

RICE—RICE-PAPER.

It is claimed that a little R. had been grown in Va. previous to the above date. The cultivation of the crop was introduced into La. 1718.

Rice-starch is largely manufactured in various European countries, in which it is sold under the name *Patent Starch*, and is used in laundries and muslin manufactories.—Rice-straw is used to make straw-plait for bonnets.—The waste of the mills, known as R.-meal, is said to be used largely in the adulteration of cheap flour. It is also fed to horses and cows, but its price is often too high to make it profitable for this purpose.

CANADA R. (*Zizania aquatica*), the WILD R. of N. America, is a species of grass quite different from the true R., and of different genus. It is common in N. America, especially in the n.w. parts; growing in miry places or shallow water, often in the margins of lakes. It has a culm 7-10 ft. high, with broad diffuse leaves, and a large terminal panicle of male flowers, with a spike of female flowers at the summit. The flowers have six stamens. The seeds are about half an inch long, slender, farinaceous, affording very good meal, and much used by the Indians. In dry seasons this R. is sometimes cured for hay. On account of its value for wild-fowl, it is often sown in marshes, which they frequent. The seed is sold in New York for about 30 cents a pound.

RICE, *rīs*, WILLIAM NORTH, LL.D., PH.D.: educator: b. Marblehead, Mass., 1845, Nov. 21; son of William R., D.D., Meth. Episc. minister. He graduated from the Wesleyan Univ. 1865; studied two years at the Scientific School of Yale College, and one year at the Univ. of Berlin; was prof. of nat. history and geology at Wesleyan Univ. 1868-84, and has since been prof. of geol. in that institution. He has been connected with the U. S. Fish Commission, and has conducted scientific investigations in the Bermudas. He is an ordained Meth. Episc. minister, is a member of various learned bodies, and has written on scientific and religious subjects.

RICE'-PAPER: see FAPER: also under RICE.—RICE-PAPER TREE: see ARALIA.

RICH.

RICH, a. *rich* [AS. *rice*, noble, rich : Goth. *reiks*, ruler : Ger. *reich* ; Icel. *rikr* ; Dan. *rig*, rich ; Icel. *riki*, power] : wealthy ; having ample means for the supply of wants ; costly ; yielding or producing largely ; fertile ; highly endowed ; made with costly or highly seasoned ingredients, as a rich cake or dish ; abundant ; full of ; perfect ; having something precious : V. in *OE.*, to enrich. **RICH'ES**, n. -*ěz* [F. *richesse*, riches : E. *riches* was originally a noun singular, but is now used as a plural] : abundance of lands, goods, or money ; wealth ; affluence ; opulence ; great plenty beyond wants. **RICH'LY**, ad. -*li*, with abundance ; with ample means ; amply ; truly. **RICH'NESS**, n. -*něs*, the state of being rich ; any good quality existing in abundance ; fertility ; productiveness ; abundance of good ingredients, as in food. **THE RICH**, persons possessed of wealth.—**SYN.** of 'rich' : wealthy ; opulent ; affluent ; valuable ; estimable ; precious ; costly ; splendid ; sumptuous ; fertile ; fruitful ; abundant ; generous ; luscious ; plentiful ; ample ; copious.

RICH, *řich*, **CLAUDIUS JAMES** : 1787–1827 ; b. France. He was educated in England, to which country his parents belonged, and became proficient in various oriental languages. In 1804 he went to Bombay in employ of the East India Co. After serving a year, he became sec. to the consul-gen. to Egypt, who soon afterward died. R. then travelled in disguise through Syria and Palestine, spent about a year in Bombay with Sir James Mackintosh, whose daughter he afterward married, and was in Bagdad 1808–14, collecting MSS., coins, etc. He published *Memoirs on the Ruins of Babylon* (1811), and a *Second Memoir on Babylon* (1818). His death occurred at Shiraz, Persia.

RICHARD I.

RICHARD, *rich'êrd*, I., King of England, surnamed CŒUR DE LION: 1157, Sep. 8—1199, Apr. 6 (reigned 1189–99); b. prob. at Oxford; third son of Henry II. by his queen Eleanor. In the treaty of Montmirail, 1169, Jan. 6, between Henry and Louis VII. of France, it was stipulated that the duchy of Aquitaine should be made over to R., and that he should do homage for it to the king of France; also, that he should marry Adelais, youngest daughter of Louis. In 1173 R. joined his mother and his brothers Henry and Geoffrey in their rebellion against the king. The rebels submitted 1174, Sep., when two castles in Poitou were allotted to R. In 1183 a second family feud broke out in consequence of R. refusing to do homage to his elder brother Henry for the duchy of Aquitaine. In this war, his father sided with R. against Henry and Geoffrey. It was ended by the death of Prince Henry, when R., actuated probably by jealousy of his youngest brother John, declared himself the liegeman of France for his possessions in that country. This step led to a war between the king of England and Philip of France, in which R. fought against his father. The balance of success being decidedly with France, a treaty in accordance with this fact was about to be executed, when, by the death of Henry II., 1189, July 6, R. became king of England. He landed in his own country 1189, Aug. 15, and was crowned in Westminster Abbey Sep. 3. In the hope of gaining salvation, and with the certainty of following the occupation which he loved best, he set out with an army to join the third crusade, then about to leave Europe. He united his forces to those of France on the plains of Vezelay, and the two armies (numbering in all 100,000 men) marched together as far as Lyon, where they separated, and proceeded by different routes to Messina, where they again met. Here R. betrothed his nephew Arthur to the infant daughter of Tancred, King of Sicily, with whom he formed a close alliance. The Sicilian throne was at that time claimed by Emperor Henry VI.; and the alliance with Tancred from this cause afterward proved very unfortunate for R. Having settled a difference between himself and Philip respecting his old engagement to Philip's sister Adelais, the English king, 1191, Apr. 7, sailed from Messina for Cyprus, carrying with him Berengaria, daughter of Sancho VI., King of Navarre. He had fallen in love with this princess, and he married her in the island of Cyprus, where he halted on his way to Palestine. But even love did not make him forget his favorite pastime of war; he attacked and dethroned Isaac Comnenus of Cyprus, alleging that he had ill-used the crews of some English ships which had been thrown on his coasts. Having then presented the island to Guy of Lusignan, he set sail 1191, June 4, and on the 10th reached the camp of the crusaders assembled before the fortress of Acre. The prodigies of personal valor which he performed in the Holy Land have made the name of Rich-

ard the Lion-hearted more famous in romance than in history. The man was the creation and impersonation of his age, and the reader who follows his career may perhaps be more interested than he would be by the lives of greater men, or by the history of a more important period. He accomplished no important object of his undertaking in the East, except the capture of Acre: twice he was in sight of Jerusalem, but retired without venturing an attack. Because of Saladin's failure to fulfil the terms of his surrender at Acre, R. ordered the massacre in cold blood of about 3,000 Mohammedan prisoners. 1192, Oct. 9, he set out on his return to England. After some wanderings and adventures, he became the captive of Emperor Henry VI., who shut him up in a castle in the Tyrol. The story of his discovery here by Blondel originated in France no further back than the century after R.'s death. John, meanwhile, ruled in England, and he and Philip of France had good reasons for wishing that R. should never return to his kingdom. He disappointed them; not, however, until he had paid a heavy ransom, and even, it is said, agreed to hold his kingdom as a fief of the empire. 1194, March 13, he found himself once more in England. His brother John, who had acted so treacherously toward him, he magnanimously forgave, but with Philip of France he could not deny himself the pleasure of a war. In the contest which followed, he was generally victorious, though in the end it was fatal to him: he was killed by an arrow shot from the castle of Chalus, which he was besieging. R., tall, ruddy, muscular, had the typical virtues and vices of chivalry: he was fearless and generous, but unscrupulous and ferocious. His reign wrought no service for England beyond supplying her poetry and legend with the name of a king which has become the nucleus of a hazy fame.—See *Chronicles and Memorials of Richard I.*, by W. Stubbs, from MS. in Library of Corpus Christi Coll., 1864.

RICH'ARD II., King of England: 1366, Apr. 13—1400, Feb. (?) (reigned 1377–99); b. Bordeaux; second son of Edward the Black Prince and Joanna of Kent. He succeeded to the throne on the death of his grandfather, Edward III., 1377, and during his minority the govt. was vested in a council of 12, from which were excluded the king's three uncles, John of Gaunt, Duke of Lancaster, the Earl of Cambridge, afterward Duke of York, and the Earl of Buckingham, afterward Duke of Gloucester. This arrangement is, however, supposed to have been collusive, and intended to lull the popular suspicion of Lancaster, under whose control the council really was. The reign of R. is interesting and important to the student of English constitutional history, but has not yet been perfectly elucidated. We find the recently established house of commons eagerly pressing forward to procure a share of political power, by means of the efficient engine of which it had then acquired sole control—the right of taxation. Again, we find the laboring

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classes now beginning to aspire to be freed from their long bondage. The famous capitation tax, 1380, gave rise in the following year to the rebellion of Wat Tyler (see TYLER INSURRECTION). R. was married 1382 to Anne of Bohemia, daughter of Emperor Charles IV. The next two years were occupied with a war with France, transferred 1385 to Scotland, where for a while the king conducted it in person. In the absence of John of Gaunt in Spain, the Duke of Gloucester had put himself at the head of affairs; and an attempt which R. made at this time to free himself from control having been defeated, several of his counselors were put to death; which action was approved by parliament, by whom further executions were ordered among the king's adherents; and the sentences were carried into effect. In 1389, however, R., by a sudden movement, succeeded in throwing off the yoke. Gloucester was compelled to retire; but from indolence or lack of capacity, the king soon allowed the reins of govt. to slip from his own hands into those of the Duke of York, and Lancaster's son, Henry of Bolingbroke. In 1394 the queen died, and soon afterward a marriage treaty was concluded between R. and Isabella, infant daughter of Charles VI. of France. Gloucester reprobating this marriage, which seems to have been unpopular, R. caused him to be privately arrested and conveyed to Calais, where he died—or was murdered, as has been conjectured. On the meeting of parliament, the king had his own way; the Earl of Warwick was banished, and the Earl of Arundel beheaded. Having triumphed over his foes, R. began to quarrel with his friends. A misunderstanding having arisen between Bolingbroke (Henry, the king's cousin, son of John of Gaunt) and Mowbray, Duke of Norfolk, the king, desirous to be rid of both, sent the former into banishment for ten years, and the latter for life. But Bolingbroke had been assiduously cultivating the popularity which his cousin had been carelessly throwing away; and the result became apparent in 1399. R., on his return, in that year, from a military expedition in Ireland, found that the banished Bolingbroke had, in his absence, landed in England, that he had soon found himself at the head of a formidable army, and that the Duke of York had yielded and gone over to his side. The army which the king had had with him in Ireland, also, no sooner landed than it almost entirely passed over to the invader. R. found himself without force or friend, while Bolingbroke, now styling himself Duke of Lancaster, was at the head of 80,000 men. R. surrendered to his successful rival at Flint Castle, and was carried captive in his train to London. 1399, Sep. 29, he formally resigned his crown: on the following day the resignation was ratified by parliament, and the crown conferred on Lancaster (see HENRY IV.—of England). By order of the peers, R. was sentenced to perpetual imprisonment, and confined secretly in a castle. In the Feb. following his resignation, the nation was told that he

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was dead, and his body, or what was supposed to be it, was brought with much pomp from Pontefract Castle, and shown to the people. There were rumors at the time of his having been murdered, and long afterward of his being alive and in Scotland. But nothing really is known regarding the end of Richard II. There is, however, little doubt that his death was by violence, and that it was the result of a conspiracy against Henry IV. which was discovered 1400, Jan. R. was slight and fair, with delicate features. His character was a combination of opposites, and is one of the enigmas of history.

RICH'ARD III., King of England: 1452, Oct. 2—1485, Aug. 22 (reigned 1483-85); b. Fotheringay Castle; youngest son of Richard, Duke of York, and great-grandson of Edmund, Duke of York, fifth son of Edward III. On the defeat and death of their father, 1460, he and his brother George, afterward Duke of Clarence, were sent by their mother to Utrecht, where they remained under protection of the Duke of Burgundy, until the crown was won by their eldest brother, Edward IV. In 1470 R., with Edward, remained in Flanders, whither they had fled on the success achieved for Margaret of Anjou by the Earl of Warwick. In 1471 he led the van of his brother's army at Barnet; he also rendered efficient assistance at the crowning victory of Tewkesbury. It is said that he and Clarence murdered Prince Edward, son of Henry VI., after the battle. It has also been popularly believed that he murdered Henry himself in the Tower. Now Duke of Gloucester, in 1472 he married Lady Anne Neville, daughter of Warwick and widow of Prince Edward. He has been generally accused of complicity in the judicial murder of his brother Clarence 1478, and Shakespeare has placed the charge almost beyond the power of historical criticism to efface. The evidence, however, seems to be almost nothing. In 1483, returning from an expedition into Scotland, he heard of the death of his brother the king. He met the Duke of Buckingham at Northampton, where it is believed that those measures were concerted which resulted in the beheading of Hastings and others, the confinement in the Tower of the infant children of the late king, and the placing of the English crown on the head of Richard III. His reign dates from 1483, June 26; and he was crowned at Westminster July 6. For some time he seems to have been popular. He was well received on a tour which he made in the n. counties. On reaching York, however, on his return, he heard of a formidable insurrection in the south in favor of his nephew, Edward V. But the bold and remorseless nature of R. on this occasion took full sway. It was soon known over the land that the royal children were dead. Little doubt has ever been felt that they were murdered, or that the deed was done at the instigation of their uncle. The insurrection was quelled, and Buckingham, who had been at the head of it, found guilty of treason and beheaded. The parliament, which met 1484, Jan.

23, declared the issue of the late king to be bastard, and the property of the late rebels confiscated. R. now offered to marry Princess Elizabeth, daughter of Edward IV., to his eldest son, Edward, on whose premature death he offered to marry the princess himself, his own queen being still alive. On the death of Anne, however, supposed to have been murdered by poison, 1485, Mar. 16, R.'s counselors dissuaded him from marrying Elizabeth, on the ground of the popular indignation which the step was sure to excite. Meanwhile the crimes to which his ambition had led him had excited the disgust and hatred of nobility and people. One by one his adherents were dropping off and crossing to France to join the Earl of Richmond. At last the storm burst: 1485, Aug. 7, Richmond landed at Milford Haven. Aug. 21 was fought the decisive battle of Bosworth, which deprived Richard of his crown and life, and decided the long war of the Red Rose and the White in favor of the House of Lancaster. R. had great energy and ability, but was utterly selfish, unscrupulous, and ferocious. It must, however, be kept in view that his age was one in which human life was held in little value, and deception regarded almost as an accomplishment. Traditional accounts are contradictory regarding his personal appearance: the story of his being a hunchback may be true, but is not proved.—See biographies by J. H. Jesse (1862), J. Gairdner (1878), and Alf. O. Legge (1885).

RICH'ARD, King of the Romans, Earl of Cornwall: see RICHARD PLANTAGENET.

RICH'ARD OF CIRENCESTER, *sic'è-tér* (L. *Ricardus Corinensis*): early English chronicler: 1335–1401; b. Cirencester, in Gloucestershire. Nothing is known of his family or circumstances. In 1350 he entered the Benedictine monastery of St. Peter, Westminster—whence he is sometimes called the 'Monk of Westminster'—and remained there for the rest of his life. His leisure was given to the study of British and Anglo-Saxon history and antiquities, in which pursuit R. is said to have visited numerous libraries and ecclesiastical establishments in England; and we know that 1391 he obtained a license from his abbot to visit Rome. One of R.'s principal works is *Historia ab Hengista ad Ann. 1348*, in two parts, of which the first (in the univ. library of Cambridge) treats of the affairs of England from the Saxon invasion to the death of Harold: two of his theological productions (formerly in the Peterborough Library) were *Liber de Officiis Ecclesiasticis* and *Tractatus super Symbolum Majus et Minus*. Above all these was long ranked *De Situ Britanniaë*, treatise on the ancient state of Great Britain. This work—whose authenticity was long doubtful—was (as was claimed) brought to light by Dr. Charles Julius Bertram, prof. of English at Copenhagen, 1747, who professed to have discovered it in the royal library there, and who sent a transcript of it, with a 'fac-simile' of the original, to the renowned English antiquary Dr.

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William Stukeley, who published an analysis of it 1757, and fully accepted it as genuine. It is now commonly recognized as a forgery, having been demonstrated as such by Prof. J. E. B. Mayor in his ed. of R.'s writings (3 vols. 1863-69). A reprint of this forged work forms one of the 'Six Old English Chronicles' in Bohn's 'Antiquarian Library' (1848). Gibbon, the historian, was credulous enough to accept the work as genuine.

RICH'ARD PLANTAGENET, *plăn-tăj'ê-nět*, titular King of the Romans, Earl of Cornwall: 1209, Jan. 5—1272, Apr. 2; b. Winchester; second son of John, King of England. In 1226 he was created Earl of Cornwall by his brother Henry III. In 1232 he put himself at the head of the party opposed to Hubert de Burgh, whose influence was at that time supreme in the councils of the king. Immense wealth, a calm practical temperament, and a shrewd eye for his own worldly interest, were the elements which combined to make R. P. a considerable power in the state. His influence prevailed, and De Burgh was driven from his position with loss of honors and estate. In 1256 R. P. was elected titular king of the Romans; and though his election was disputed, he was crowned at Aix-la-Chapelle: subsequently, he exercised some of the nominal rights which belonged to his sovereignty. In the great struggle between Henry III. and his nobles, R. P. at first acted as mediator; later he took a decided part with his brother against the party headed by Simon de Montfort; and 1264, May 14, he was taken prisoner by that leader at the battle of Lewes. De Montfort shut him up in Kenilworth Castle, from which he was released at the end of a year. The rest of his life does not seem to have been marked by any event of historical importance. He was thrice married: 1230 to Isabel, daughter of the Earl of Pembroke; 1243 to Sanchia of Provence, sister of Queen Eleanor; and 1267 to Beatrice, daughter of Theodoric de Falkmonte. His character shows no great virtues nor great vices.

RICHARDS, *rich'êrdz*, JAMES: missionary: 1784-1823; b. Mass. He graduated from Williams College 1809, and 3 years later from Andover Theol. Seminary. In college he became interested in foreign missions, and with Samuel J. Mills and Gordon Hall held prayer and conference meetings beside a haystack in one of the Williamstown meadows—a location which has, on this account, become historic. With 5 others he signed the paper to the Mass. Gen. Assoc. (Congl.) which resulted in the organization of the American Board of Commissioners for Foreign Missions. He was commissioned as a missionary by this soc. 1815, and was stationed at Ceylon. After suffering from a long illness, he sailed 1823 to the Cape of Good Hope, at which place he died.

RICHARDS—RICHARDSON.

RICH'ARDS, WILLIAM : 1792, Aug. 22—1847, Dec. 7 ; b. Plainfield, Mass. He graduated from Williams College 1819, and from Andover Theol. Seminary 1822. In 1822, Nov., he was ordained, and went as a missionary of the Amer. Board to the Sandwich Islands. He was appointed chaplain to the king 1838, and also officiated as councilor and interpreter ; and on the recognition of the govt. by foreign nations 1842, he became ambassador to England. Three years later he became minister of public instruction. He died at Honolulu.

RICHARDSON, rich'erd-son, Sir **BENJAMIN WARD**, M.D., LL.D. : b. Somerby, Leicestershire, England, 1828, Oct. 31. He studied at Anderson's Univ., Glasgow, but graduated in medicine at the Univ. of St. Andrews. He received a number of prizes for essays—one of £300 (the Astley Cooper prize 1856) on the coagulation of the blood. He became a member of the Royal College of Physicians by examination 1859, and was elected a fellow of the college 1861, a fellow of the Royal Soc. 1867, Croonian lecturer 1873, and has been made honorary member of many other learned societies in Europe and America. In 1865 he discovered a poisonous product common to the poisons of contagious diseases, and to which he gave the name *septine*, and 1866 the application of ether spray for destroying local sense of pain in surgical operations. Dr. R. has written much on public health, alcoholism, action of poisons, and other medical subjects. He originated and for a number of years edited the *Journal of Public Health*, and later edited the *Social Science Review*. His best-known works are *Diseases of Modern Life* (1876) ; *Results of Researches on Alcohol* (1877) ; and *Temperance Lesson-Book* (1877). In 1888 he published a novel, *The Son of a Star*, and contributed medical articles to periodicals 1890. He was president for many years of the London Med. Soc. Between 1884 and 1892 he published quarterly *The Asclepiad*, a periodical of original research and observation on the science, art, and literature of medicine, preventive and curative, all the work being from his own pen. He was knighted 1893 ; died 1896, Nov. 21.

RICH'ARDSON, CHARLES FRANCIS : born Hallowell, Me., 1851, May 29. He graduated from Dartmouth College 1871 ; removed to New York 1872, and became one of the editors of the *Independent*, which position he held 6 years, when he joined the editorial staff of the *Sunday School Times* in Philadelphia. He returned to New York 1880, and was editor of *Good Literature*, and assoc. editor of the *Library of Universal Knowledge*, till 1882, when he was appointed prof. of Anglo-Saxon and English language and literature in Dartmouth College, which chair he still occupies (1891). He has published *A Primer of American Literature* (1876) ; *The Cross*, a poetical work (1879) ; *The Choice of Books* (1881) ; and *American Literature : 1607—1885*, 2 vols. (1887—89). His books show excellent judgment and cultivated taste.

RICH'ARDSON, HENRY HOBSON : architect : 1838, Sep. 29—1886, Apr. 28 ; b. St. James parish, La. He

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graduated from Harvard College 1859; studied architecture in Paris, where, on account of the loss of his estate by the civil war, he was obliged to pay his way in large part by working in an office. He returned to the United States 1865; planned the Agawam Bank, the Unitarian Church, a fine building for railroad offices, and the North Congl. Church, in Springfield, Mass.; and quickly laid a broad foundation for his future fame. Among notable buildings which he designed are the Brattle Street Church and Trinity Church, Boston; the City Hall at Albany; and the Sever Hall and Austin Hall at Harvard College. He planned also some of the finest work in the N. Y. State Capitol building; designed several public libraries, railroad stations, and various public and private edifices. His office was finally established in Boston. At the time of his death he was working on plans for the Board of Trade building at Cincinnati, and the Pittsburgh, Penn., Court-house. He died at Brookline, Mass., after an illness of many years. His *Life*, by Mrs. Schuyler Van Kensselaer, was published 1888.

RICH'ARDSON, ISRAEL BUSH: soldier: 1815, Dec. 26—1862, Nov. 3; b. Fairfax, Vt. He graduated at West Point 1841, and was assigned to the 3d infantry, serving through the Florida war and on frontier duty until the Mexican war, in which he was engaged till its close, being brevetted capt. and maj. for bravery. In 1855 he resigned from the army and became a farmer in Mich. At the beginning of the civil war he was made col. of the 2d regt. of Mich. He was soon put in command of a brigade, which he led in the first battle of Bull Run and with which he helped to cover the retreat of the army. 1861, May 17, he was commissioned brig.gen. of vols.; and 1862, July 4, maj.gen. of vols. He commanded divisions in the Peninsular campaign and at South Mountain and Antietam. He died at Sharpsburg, Md., from a wound received at Antietam.

RICH'ARDSON, Sir JOHN, K.C.B., M.D., LL.D.: English traveller and naturalist: 1787, Nov. 5—1865, June 5; b. Dumfries, Scotland; son of the provost of that town. He studied medicine at the Univ. of Edinburgh, and entered the navy as asst. surgeon. After 1810 he was stationed in Canada, and later in Georgia. He was appointed, 1819, surgeon and naturalist to the overland expedition under Franklin. 1825-27 he accompanied Franklin in his overland expedition to the mouth of the Mackenzie. After filling various responsible positions, R. received knighthood 1846; and two years later set out to search for his former travelling companion, Sir John Franklin, returning to England from his fruitless search 1849. In 1829-37 appeared his chief work, *Fauna Boreali-Americana* (4 vols.).

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RICH'ARDSON, RICHARD: patriot and soldier: 1704-1780, Sep.; b. near Jamestown, Va. He was a land-surveyor in Va., but removed 1725 to N. C., engaged in farming, and was made col. of militia. He was active in the Indian border outbreaks, and 1775 was elected a member of the N. C. council of safety, and in the same year put down a tory revolt. For this he received the thanks of the provincial congress, and was made a brig.-gen. He was a member of the provincial congress of 1776, and one of the framers of the N. C. constitution. He took part in the defense of Charleston, and with its fall 1780, May 12, was taken prisoner and sent to St. Augustine; but, his health failing, he was soon released. He died at Salisbury, N. C.

RICH'ARDSON, SAMUEL: first great English novelist: 1689-1761, July 4; b. Derby; son of a joiner, whose ambition it was to educate his son for the clerical calling. The means were found deficient, and at the age of 17, with simply such education as a country school could then furnish, the young man fared forth to London, where he became apprentice to John Wilde, a printer. In the discharge of his business duties he was exact and careful, and on expiration of his apprenticeship he became foreman of Wilde's establishment. Some years afterward, he started as printer on his own account in Salisbury court, Fleet street; and, finding success assured, he wedded the daughter of his late employer. After her death 1731, he married a Miss Leake. By each lady he had six children, of whom only four daughters, with their mother, survived him. Throughout life, in his business relations, he was prosperous; very early he had influence to secure the lucrative post of printer of the journals of the house of commons; 1754 he became master of the Stationers' Company; and 1760 he purchased the moiety of the patent of king's printer, but died the year following.

Richardson's literary ability flowered late. Till he had passed the age of 50, his relations with literature, except in the way of printing it, were of the most slight and amateur kind; but in 1740, Nov., he surprised the world with his *Pamela*, which had instant and great success. Its continuation, to which the author was stung by the attempt of some hungry scribe to make a meal or two by the issue of a pretended sequel, entitled *Pamela in High Life*, was, however, pronounced much inferior. Memorable in itself, the work is now to most readers more so, as having suggested to Fielding his *Joseph Andrews*, originally conceived as a parody of Richardson's somewhat prudish moralities. The exquisiteness of the satire was not appreciated by Richardson; and he never forgave Fielding for it, nor could speak of him afterward with common temper or patience.

In 1748 he issued the first four volumes of *The History of Clarissa Harlowe*—by common consent his masterpiece

—a work which in its progress excited intense interest. His third and last great work, *The History of Sir Charles Grandison*, was published 1753. As a whole, this is less interesting than its predecessors; and in his representation of the life of the fashionable classes, of which he had no clear personal knowledge, the writer succeeds but poorly.

R.'s method of minute elaboration has some tendency toward an effect of tedium; moreover, the epistolary vehicle which he has chosen, though with certain advantages of its own, does not subserve rapidity of movement; and as his stories run to immense length, their perusal involves an effort of patience. But in the depth and simplicity of his sentiment, his knowledge of the heart, and his mastery of elemental emotion, there are sources of attraction; and in virtue of the overwhelming effects of pathos in which the interest of his *Clarissa* culminates, a place must always be assigned him among the few potent masters of genuine tragic passion. His specialty lies in subtle analysis of the intricacies of female mind and emotion; and in this particular field he has scarcely perhaps been surpassed. A curious sort of passionless confidential intimacy with women, it seems from his earliest years to have been his instinct to cultivate. At the age of 13 he was employed by three young women, who could not write, to indite their letters to their sweethearts; and in this work he both satisfied them and honorably kept their secret. Throughout his life he was the centre of a circle of female friends and admirers, who came to him with their little delicate secrets, as to a kind of lay father-confessor; and of the fruits of his nice observation of them he has given us to the full in his novels. The success of these is said to have bred in him a somewhat inordinate vanity, the only little flaw in a character unusually blameless and amiable. Within a dozen years he had a host of imitators in the field which he had discovered—the novel of domestic life and manners. Of works of less importance, R. published, besides occasional contributions to periodicals, *The Negotiations of Sir Thomas Roe in His Embassy to the Ottoman Porte from 1621 to 1628* (1740, fol.); *An Edition of Æsop's Fables, with Reflections*; *Familiar Letters to and from Several Persons on Business and Other Subjects*; and in 1804 there appeared his *Correspondence*, edited by Mrs. Barbauld. See *The Works of R.*, with preface, etc., by Leslie Stephen (12 vols. 1884).

RICHARDSONIA, n. *řich-ěrd-sō'ňĩ-ă* [after Richard Richardson, an English botanist]: genus of *Spermacodiæ*, trailing American herbs. The roots of *R. rosea* and *R. scabra* have some of the properties of ipecacuanha.

RICHELIEU.

RICHELIEU, *rêsh'éh-lô*, F. *rêsh-le-êh'*, **ARMAND JEAN DU PLESSIS**, Cardinal, Duc DE: 1585, Sep. 5—1642, Dec. 4; b. Paris; of a noble but impoverished family. He was educated for the military profession at the Collège de Navarre. On the retirement to a religious life, however, of his elder brother, who held the bishopric of Luçon, R., with a view to succeeding to this preferment, betook himself to ecclesiastical studies, and underwent the preliminary examination for his degree at the Sorbonne. In 1607 he was consecrated Bp. of Luçon at Rome by Cardinal de Givry, in presence of Pope Paul V., and for some time devoted himself zealously to his duties in his diocese. At the states-general 1614, being appointed one of the representatives of the clergy, he attracted the notice of the queen-mother by an address which he delivered in the presence of the young king, Louis XIII.; and his appointment 1616 as sec. at war and foreign affairs seemed to open his way to success in political life; but in one of the vicissitudes of state intrigue common at that period, he soon found it necessary to withdraw from court, and return to his diocese. Meanwhile, a rupture occurred between the queen-mother and the king, and R., through the agency of a very remarkable man—the celebrated Capuchin Father Joseph—whose fortunes thenceforward were inseparably united with those of R., succeeded in effecting their reconciliation (1620, Aug.), and the restoration of the queen to her position at court. The foundation of R.'s influence was thus solidly laid; but he appears to have acted with tact and patient forbearance. He formed alliance with the powerful favorite Duc de Luynes, and 1622 was named cardinal, and two years later he was made minister of state—a position which, though frequently menaced and constantly beset by every variety of court intrigue, he retained to the end of his life. His first important measure was the conclusion of the alliance with England, by the marriage of Henrietta, sister of the king, with Charles, then Prince of Wales, 1624. His successful conduct of the war of the Valteline, an affair of much delicacy for a cardinal, as presenting the pope himself as the antagonist of France, tended still more to strengthen his power. His enemies, however, were constantly on the watch for opportunities of undermining his influence, and even of bringing about his death. The queen withdrew her favor, and the king, while he trusted him implicitly, never ceased to fear him. The crisis of the struggle came 1630, Dec. 11, when R. himself believed that his fate was inevitable. His disgrace, indeed, had been decided; the king, fearing to meet him face to face, had refused him an audience. His attempts to force an entrance to the king at the Luxembourg were defeated; but Louis, in his weak fear of R., having withdrawn to Versailles, the cardinal there succeeded in obtaining an audience, and, having once effectually overborne the weakness and alarmed the fear of the sovereign, his supremacy remained from that day

firmly and irrevocably established. This famous day is known as *Le Journée des Dupes*.

The administration of R. forms an epoch in the history of the constitution of the kingdom of France, as well as of its relations with other countries. It is memorable for several great measures, or series of measures, through which the posture of affairs underwent complete and permanent change. Of these, the first and the most lasting in results was that by which the absolute authority of the sovereign was established. From the mediæval period, the power of the French kings had been controlled, and in many cases overridden, by the feudal privileges of the nobles; and in the stormy conflicts of the 16th and of the beginning of the 17th c., the power of the crown had often been reduced to a cipher. By a succession of vigorous and energetic, and, it must be added, frequently unscrupulous measures, R. succeeded in breaking down the political power and subduing the arrogant assumptions of the great families; the heads of several among them being brought to the scaffold, while not a few were condemned to lifelong imprisonment. Among his most inveterate and most powerful adversaries was Gaston, Duke of Orleans, brother of the king; but R. triumphed over him, and even the queen-mother, Marie de' Medici, was obliged to bow before the unbending spirit of R., and to withdraw into exile at Cologne; and R., at the close of his career, delivered up the royal authority, which he had wielded 18 years, almost without a single constitutional check upon its absolute exercise.

Another of the great enterprises of this minister was the overthrow of the Huguenot party as a political power and a rival of the throne in France. The siege and capture of Rochelle, which he conducted in person (1628), was followed by the submission of the other Huguenot strongholds. R., however, secured for the Huguenot body a certain measure of religious toleration; and, on the whole, is confessed to have used his success in this conflict with moderation.

In the external relations of France, the great object of all his measures was the overthrow of the preponderance of Austria. With this view he did not hesitate to foment the internal disaffections of Germany, even allying himself with this design with the German Protestants, and even with the great champion of the Prot. cause, Gustavus of Sweden; and in connection with his anti-Austrian policy, he also took part with the disaffected Spanish provinces in the Netherlands. His designs on Belgium, however, failed of success. With similar views he lent his support to the revolt of Catalonia against Philip IV., and sent an army into Piedmont; and to no other part of his foreign policy did he adhere with such pertinacity to the very end of his life.

His internal administration of France has been severely criticised. He was reckless and unscrupulous in the use of means against his enemies, and the expend-

RICHFIELD SPRINGS—RICHMOND.

ture which his foreign wars entailed led to many oppressive impositions. His own personal expenditure was magnificent even to prodigality, but he is acquitted of all sordid schemes of self-aggrandizement.

R. died at Paris. Notwithstanding his many distracting occupations, the writings which he left fill several volumes. Some of these, ascetical or controversial, were written before his entrance into political life. Of his later writings, his *Testament Politique* and his *Memoirs* have attracted much notice. He even indulged occasionally in literature, and wrote two plays of no great reputation. His letters are numerous, and many of them full of interest. He was a patron of literature, and to him France owes the establishment of the royal printing presses and of the French Academy.

RICHFIELD SPRINGS: village and summer resort in Otsego co., N. Y.; near the head of Schuyler Lake; on the Delaware Lackawanna and Western railroad; 7 m. from Otsego Lake, 16 m. n. of Cooperstown, 35 m. s.s.e. of Utica. It derives its name and popularity from several sulphur springs, noted for their efficacy in the cure of cutaneous diseases. There are 5 churches, several hotels, numerous boarding-houses, a seminary, and many attractions for the tourist. Pop. (1870) 696; (1880) 1,307; (1890) 2,000; (1900) 1,537.

RICHMOND, rich'mond: city, cap. of Wayne co., Ind.; on Whitewater river, and on the Chicago St. Louis and Pittsburgh, the Grand Rapids and Indiana, the Pittsburgh Cincinnati and St. Louis, and the Cincinnati Hamilton and Dayton railroads; 68 m. e. of Indianapolis, 70 m. n.n.w. of Cincinnati, 92 m. s.-by-e. of Fort Wayne. It is 700 ft. above tide-water, is in a rich agricultural region, and has important manufactories. A union depot accommodates all its railroads. The city has excellent drainage; efficient fire, water, gas, and electric light services; 37 m. of improved streets; 70 m. of brick and stone sidewalks; and horse and electric street railroads. There are 21 churches, 9 public-school buildings, Earlham College (organized by the Soc. of Friends 1859, and open to both sexes), free public library, substantial co. and municipal buildings, new state insane hospital, co. court-house (building 1891, cost \$275,000), city hospital, home for friendless women, 2 orphans' homes, 3 national banks (cap. \$450,000), 2 opera-houses, and 4 daily 7 weekly, and 2 monthly periodicals. In 1890 there were 293 manufacturing establishments, employing \$4,000,000 capital and 3,000 hands, and yielding products valued at \$6,000,000; and 214 mercantile establishments, with \$3,600,000 capital, did a business of about \$7,000,000. The manufacturing industries showed a gain over 1880 of 133 establishments, 800 hands, \$500,000 capital, and about \$1,000,000 in value of products. The principal manufactures are threshing-machines, agricultural implements, steam-engines and boilers, various kinds of machinery, and flour. P. (1880) 12,743; (1890) 16,608; (1900) 18,226.

RICHMOND.

RICHMOND : town, cap. Madison co., Ky. ; on the Louisville and Nashville and the Richmond, Nicholasville, Irvine and Beattyville r.rs., 25 m. s.e. of Lexington, 139 m. e.s.e. of Louisville. The region abounds in coal, iron, and lumber, and is famous for horse-breeding and the raising of mules and cattle. R. is the seat of the Central Univ. of Ky. (Presb.), founded 1874, which (1897) had 35 instructors, 754 students, 7,000 vols. in the library, and a total income of \$13,000 ; L. H. Blanton, D.D., chancellor. Here is also the Madison Female Institute.—Pop. (1880) 2,909 ; (1890) 4,753 ; (1900) 4,653.

RICHMOND : town, Sagadahoc co., Me. ; on the w. bank of the Kennebec river, and on the Maine Central r.r., 16 m. below Augusta, 44 m. n.e. of Portland. Except in winter, steamboats ply to Boston. It has extensive boot and shoe factories, a steam sawmill, 2 national banks, an acad., 4 churches, etc.—Pop. (1880) 2,658 ; (1890) 3,082 ; (1900) 2,049.

RICHMOND : town, cap. of Ray co., Mo. ; on the Atchison, Topeka and Santa Fé r.r., 9 m. n.w. of Lexington, 37 n.e. of Kansas City. It is the seat of Richmond Institute, and has manufactories of carriages and farming tools, 2 banks, and 7 churches.—Pop. (1880) 1,424 : (1890) 2,895 ; (1900) 3,478.

RICHMOND,

RICHMOND: an independent city and cap. of the state of Va.; on the James river, at head of tide-water, and on the Newport News and Mississippi Valley, the Richmond and Alleghany, the Richmond and Danville, the Richmond Fredericksburg and Potomac, and the Richmond and Petersburg railroads; 22 m. n. of Petersburg, 100 m. s.-by-w. of Washington. The city is at the lower falls of the river, 151 m. from its mouth, and is built on a series of hills, chief of which are Richmond and Shockoe. The environments are naturally attractive, and the views of the city from its s. approaches, and from the city overlooking the river, are highly interesting. With its suburbs the city has an area of 52.25 sq. m. The river is here crossed by 5 bridges, uniting the city with Spring Hill, Manchester, and other suburban towns and villages. The streets are laid out regularly, crossing each other at right angles, and are lighted with gas and electricity. Both the gas and water plants are owned by the city; the water is taken from the river and distributed from two large reservoirs: the last one constructed, having a park, lake, and attractive boulevards, has become a popular local resort. For many years R. has had large foreign and domestic trade, particularly in tobacco, flour, and manufactured articles; and its interstate traffic is growing rapidly, owing to important combinations recently made in the s. railroad system. It has regular steamship communication with New York, Philadelphia, Baltimore, and other Atlantic coast ports. During the fiscal year ending 1903, June 30, imports of merchandise were \$165,610, and exports \$2,385,000. The entrances (1890) were 5 American vessels of 1,532 tons and 19 foreign vessels of 16,189 tons—total vessels 24, tonnage 17,721; clearances were 6 American vessels of 3,600 tons and 31 foreign vessels of 24,556 tons—total vessels 37, tonnage 28,156. There were 61 vessels (16 steam, 45 sailing) of 4,622.73 tons enrolled and licensed in the custom-house. The last census (1900) showed 763 manufacturing establishments, with \$20,848,620 capital, 16,692 hands, and products valued at \$28,900,616. The principal products by values were: chewing and smoking tobacco \$5,223,733; iron manufactures, including machinery, \$2,594,186; lumber and planing mill products \$560,886; fertilizers \$1,045,063. The U. S. internal-revenue taxes on various forms of manufactured tobacco exceeded \$1,000,000. There were 59 churches and chapels, divided denominationally as follows: Bapt. 9 white, 11 colored; Meth. Episc. 8 white, 3 colored; Prot. Episc. 9 white, 1 colored; Presb. 5; Rom. Cath. 3; Hebrew 3; Lutheran 2; Disciples 2; and Christadelphian, Friends, and German Evangelical, each 1. In 1887-8 there were 21,679 children of school age (5-21 years), of whom 10,867 were enrolled in the public schools and 1,400 in private and parochial schools. There were 18 public-school buildings, including a high school; 29 male and 181 female teachers; school property valued at \$459,393; and receipts and expenditures

RICHMOND.

for school purposes \$135,655. Advanced courses were taught in the Hartshorn Memorial College (Bapt.), founded 1833, which had 17 instructors and 91 students; Richmond College (Bapt.), 1832, 7 instructors and 150 students; Richmond Theol. Seminary (Bapt.), 1867, 4 instructors and 62 students; Medical College of Va., 1838, 18 instructors and 47 students; 2 business colleges, 4 instructors and 91 students; and, at Ashland, Randolph-Macon College (Meth. Episc. S.), 1832, 15 instructors and 185 students. The Richmond Normal School and the Colver Theol. Institute were for colored students exclusively. In 1901 the public-school enrollment was 12,139 pupils, and the expenditure \$166,859. The Virginia Mechanics' Institute had 347 students in scientific and mechanical arts. In 1902 there were 5 national banks (cap. \$1,900,000), 6 state banks (cap. \$954,562), 4 private banks, and 5 fire insurance companies; and 5 daily, 17 weekly, and 11 monthly periodicals. The net public debt (1903) was \$7,227,382; tax rate \$1.40 on \$100; assessed valuation of all taxable property \$70,486,132, against \$53,471,343 in 1891.

R. possesses many buildings, memorials, and scenes of wide interest. The State Capitol, on the summit of Shockoe Hill, surrounded by a park of 12 acres, is a Greco-composite building, with Ionic columned portico, built 1796 after the plans, suggested by Thomas Jefferson, of the Maison Carrée of Nîmes, France. The park is beautifully ornamented and contains three fountains; Foley's bronze statue of 'Stonewall' Jackson; Crawford's equestrian statue of Washington, surrounded by bronze statues of Patrick Henry, Thomas Jefferson, Andrew Lewis, George Mason, John Marshall, and Thomas Nelson, by Crawford and Rogers; and a marble statue of Henry Clay. Within the capitol are Houdon's famous marble life-size statue of Washington, a marble bust of Lafayette, and portraits of many eminent people of Va. The governor's mansion is on the n.e. corner of Capitol square; the Federal building, of granite in the Italian style, is s. of the square; and the Brockenbrough House, occupied by Jefferson Davis while pres. of the Confederacy, and about to be converted into a museum of Confederate memorials, is in the vicinity. Of the former Libby and Castle Thunder prisons, the first has been removed to Chicago for the Columbian exhibition, and the other has reverted to its original use as a tobacco warehouse. A new city hall, for which \$790,000 had been appropriated, was approaching completion 1891. Other buildings of note are St. John's Church (Prot. Episc.), on Church Hill, in which Patrick Henry made his impassioned 'liberty or death' speech 1775; the Monumental Church (Prot. Episc.), built on the site of the old Richmond Theatre to commemorate the burning of that building and the loss of many lives 1811; and the Tredegar iron-works. An imposing monument to Gen. Robert E. Lee was unveiled 1890 May 29. Bacon's

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Quarter Branch, Bloody Run, Belle Isle, the state fairgrounds, the falls of the river, the old cemetery of St. John's Church, and the mammoth flour-mills, also are worth visiting.

The site of R. was temporarily settled by the English 1609. A mill was built near the falls by William Byrd 1737, and soon afterward a warehouse; and in its village state the place was known as Byrd's Warehouse. In 1742 it was incorporated and laid out as a town; 1779 was made the capital of the commonwealth; 1781 was taken and burned by the British under Benedict Arnold; 1861 became the capital of the Confederate states; during the civil war was the objective point of the principal milit. operations of the Union army in Va.; and 1865, May, was evacuated and partly burned by the Confederates. Pop. (1880) 63,808; (1890) 81,388; (1900) 85,050.

RICH'MOND: rising town of Surrey, England, 10 m. w.s.w. of London by railway, partly on the summit and declivity of Richmond Hill, and partly on the level right bank of the Thames. The rich and beautiful scenery of the vicinity is seen with advantage from the terrace which stretches along the brow of the hill. The parish church contains the tombs of Thomson the poet and of Edmund Kean the tragedian. The banks of the Thames are studded with villas, and around the town are nurseries and kitchen-gardens. The people subsist chiefly by providing for the immense number of visitors and pleasure-seekers who frequent the town, especially during summer. Pop. (1891) 22,684.—R., formerly called Scheen or Sheen, received its present name from Henry VII., who named it after his own earldom. It was a royal residence in the time of Henry I., and since that time the sovereigns of England have frequently resided here, and here Edward III., Henry VII., and Elizabeth died. Richmond Park, 8 m. in circuit, is open to the public.

RICH'MOND: market-town and parliamentary and municipal borough in the N. Riding of Yorkshire, England, on the left bank of the Swale, 42 m. n.w. of York. The parish church is chiefly in Gothic, but partly in Norman architecture. Though the trade of R. is now much less than in earlier ages, iron and brass founding, and tanning, are carried on, and there are a paper-mill and several corn mills. Pop. of municipal borough (1881) 4,502; (1900) 4,200.—The earldom of Richmond was conferred by the Conqueror on his kinsman Alan Rufus, Count of Bretagne; but came into the possession of the crown when Henry, Earl of Richmond, succeeded Richard III. as Henry VII. The title of Duke of Richmond was afterward conferred by Charles II. on his son Charles Lennox, in whose family it remains. The castle, surrounded by picturesque scenery, stands on a rock overlooking the river. In the vicinity are ruins of a small monastery, founded 1258.

RICHMOND—RICHTER.

RICHMOND, LEGH: clergyman of the Church of England, and tract-writer: 1772, Jan. 29—1827, May 8; b. Liverpool, England; son of a physician. He graduated at Trinity Coll., Cambridge, 1794; served as curate in the Isle of Wight; was chaplain of Lock Hospital, London; rector of Turvey, Bedfordshire; also, chaplain to the Duke of Kent. Wilberforce's *Practical View* early influenced his mind for good. He is everywhere known as the author of *The Dairyman's Daughter* and other tracts, some of which were printed in millions of copies in many languages. His collected tracts were published 1814, entitled *Annals of the Poor*. He published also *Domestic Portraiture*, *Memoirs of Three Children*, and edited *Fathers of the English Church*. His Memoir by Grimshaw, and Life by Bedell, appeared 1828 and 9.

RICHMOND-EARTH: in *geol.*, an earth or bed near Richmond, Va., of Eocene or Miocene age, composed largely of diatoms.

RICHMONDITE, n. *rich'mond-īt* [after *Richmond*, Mass., where found]: a variety of Gibbsite.

RICHTER, *rich'tér*, JOHANN PAUL FRIEDRICH (commonly known as 'JEAN PAUL'): German humorist and sentimentalist of the greatest singularity, hence called by his countrymen *Der Einzige* (The Unique): 1763, Mar. 21—1825, Nov. 14; b. Wunsiedel, Bavaria. His father, a poor schoolmaster at R.'s birth, subsequently became parish priest at Schwarzenbach, on the Saale; but his circumstances always remained straitened, and he died burdened with debt, while his son was attending the gymnasium at Hof. Nevertheless, R. went to the Univ. of Leipzig 1780 to study theology, which did not prevent him from roving freely over the whole circle of literature. The exact extent of his scholarly acquirements is not known; his studies were never systematic, and it is probable that he was not deeply read in any single branch of learning; but he carried in his head or in his note-books a vast confused miscellany of facts, literary, scientific, philosophical, and theological, and strewed them with oriental profusion over the pages of his works, where they do duty as metaphors, or illustrations, after the most grotesque and wonderful fashion. The English satirists, Pope, Swift, and Young, appear to have been special favorites with him; and among his own countrymen, Hamann and Hippel. But the most marvellous thing about his student-life was not the extent or variety of his reading, but the fact that he had the heart to read at all. During the whole time, he was in miserable poverty. He could hardly get a single private pupil, and passed many a day without tasting food. Hunger was, in truth, his constant companion. In desperation he betook himself to literature for a subsistence, but it was long before he won recognition. His first composition, *Das Lob der Dummheit* (The Praise of Folly), modelled on the *Moriæ Encomium* of Erasmus, could not find a publisher; his second, written, he tells us, while he was surrounded

by 'unpaid debts and unsoled boots,' *Grönländische Prozesse* (Greenland Lawsuits, 2 vols. Berl. 1783-85), did succeed in getting itself published, but not read, and at length the heroic fortitude of R. gave way. In 1785 he fled from the city to avoid imprisonment for debt, and took refuge with his mother at Hof. Here his circumstances were but little better; and 1786 he was glad to accept a tutorship at Topen, in the family of Herr von Oerthel. In 1790, at the request of several families of Schwarzenbach, he removed thither to take charge of the education of their children, and lived as a private schoolmaster for some years. Meanwhile, he had not given up authorship. In 1788 appeared at Gera his *Auswahl aus des Teufels Papieren* (Selection from the Devil's Papers), which, however, in spite of its captivating title, did not prove more popular than its predecessors. R. seemed destined to failure as a writer. His sarcastic, far-glancing, and grotesquely-sportful humors were so unlike anything else in literature, and so oddly, even extravagantly, expressed, that the mass of readers could make nothing at all of them, and perhaps charitably regarded the author as crazy. But in 1793 the turning-point in his fortunes and fame occurred. In that year, a work which he had published at Berlin, *Die Unsichtbare Loge* (The Invisible Lodge), a sort of romance based on his experience as a schoolmaster, was unexpectedly successful, and R. began to grow a little more familiar with the sight of gold. It was followed by *Hesperus* (4 vols. Berl. 1794), the work by which perhaps he is best known out of Germany; *Quintus Fixlein* (Baireuth 1796); *Biographische Belustigungen unter der Gehirnschale einer Riesin* (Biographical Recreations under the Cranium of a Giantess, Berl. 1796); *Blumen-, Frucht-, und Dornenstücke* (Flower, Fruit, and Thorn Pieces, 4 vols. Berl. 1796-7), whose opening chapter contains his magnificent 'Dream of the Dead Christ,' translated into English by Carlyle; *Jubelsenor* (The Parson in Jubilee, 1797); and *Das Campanerthal* (Erfurt 1798), a work on the immortality of the soul, which attracted the notice and won for its author the friendship of Herder. R. was now one of the greatest celebrities of Germany; his books had become quite the rage, especially among educated women. He himself, too, was personally a great favorite; there was something in his conversation and manner so winning, joyous, and charmingly tender, that it excited not only friendship, but love. We read of one brilliant woman, Charlotte von Kalb, who actually sought to obtain a divorce that she might marry R.; and of another who committed suicide because he would not return her unlawful passion. This last incident affected R. profoundly. He was not only perfectly innocent in all his relations with the other sex, but pure and high-minded, and he had remonstrated with the unhappy maiden in the most wise and delicate manner. In 1801, after he had become famous, he married Caroline Mayer, daughter of Prof. Mayer of Berlin, and with

his young wife travelled about Germany, visited Goethe and Schiller, though not becoming intimate with either, and formed a closer acquaintance with old Gleim, Wieland, etc.; but ultimately settled at Baireuth, in Bavaria where he applied himself with the most honorable assiduity to work. His aerial, fantastic, many-hued creations—his solemn images of glory and gloom—his riant humors—his burlesque speculations on life, manners, and, indeed, on the *omne scibile*—his innumerable descriptions of nature, soft-glittering as with morning dew, flowed from him as from inexhaustible fountains. The productions belonging to his later period of a humorous kind are: *Titan* (4 vols. Berl. 1800–03), considered by R. himself his greatest work; *Flegeljahre* (happily rendered by Carlyle ‘Wild Oats,’ 4 vols. Tüb. 1804–5); *Katzenberger’s Badereise* (2 vols. Heidelb. 1809); *Des Feldpredigers Schmelzle Reise nach Flütz* (Tüb. 1809); and *Der Komet, oder Nikolaus Markgraf* (3 vols. Berl. 1820–22). Among works professedly reflective or philosophical (though the elements of humor and poetry are not absent) are: *Vorschule der Aesthetik* (3 vols. Hamb. 1804); *Levana, oder Erziehungslehre* (Brunswick 1807), a treatise on education; and numerous other pieces. In his latest years he was afflicted with decay of his physical powers, and in his last year with total blindness. The death of his son Max, 1821—a youth of great promise—inflicted an incurable wound on his heart.—See *Wahrheit aus Jean Paul’s Leben* (Bresl. 1826–33), a work begun by R. himself; Döring’s *Leben und Charakteristik Richters* (2 vols. Leip. 1830); Spazier’s *Jean Paul Friedrich Richter* (5 vols. 1833); Planck, *Jean Paul’s Leben* (1868); Nerrlich, *Jean Paul und seine Zeitgenossen* (1876). Some of his pieces have been translated into English by Carlyle and others; Carlyle has also given us two admirable essays on the life, writings, and genius of the man.

RICIMER, *rîs’î-mér*: distinguished commander and political actor in the Roman empire: d. 472; son of a chief of the Suevi and a daughter of Wallia, King of the Visigoths. He was reared in the court of Valentine III.; attained the rank of *comes* of the empire, serving with distinction under Actius. He was hailed ‘Deliverer of Italy,’ after overcoming the Vandals at sea near Corsica, and on land near Agrigentum. Having deposed the emperor Avitus, he was *de facto* ruler of Italy (his birth preventing his assuming the imperial title), under the name ‘patrician,’ conferred by Leo 457. He successively created and overthrew three emperors, Majorian, Libius Severus, and Anthemius, having married a daughter of the last. He died of fever, in the reign of the next emperor, Polybius.

RICINIC, a. *rî-sîn’îk* [L. *ricinus*, the castor-oil plant]: applied to an acid, being one of the products obtained from the distillation of castor-oil at a high temperature. RICINUS (see CASTOR-OIL PLANT, under CASTOR-OIL),

RICININE—RICKETS.

RICININE, n. *rĭs'in-in* [mod. L. *ricinus*]: in *chem.*, an alkaloid found in the seeds of the castor-oil plant *Ricinus communis*, and in those of *Croton Tiglium*.

RICINOLEINE, n. *rĭs-in-ŏl'ē-in* [L. *ricinus*, castor-oil plant; *oleum*, oil]: in *chem.*, a fatty substance obtained from castor-oil, of which it is the chief constituent.

RICK, n. *rĭk* [AS. *hrec*, a heap: Icel. *hraukr*, a heap of fuel: Gael. *ruc*, a rick, a stack: Norw. *røyk*, *rauk*, a small heap, as of corn-sheaves, or of turf: Dan. *ryg*]: a heap of corn or hay regularly piled up in the field or open air, and usually covered with thatching: V. to pile up in a heap in the open air, as grain in the ear, or hay. **RICK'ING**, imp. **RICKED**, pp. *rĭkt*. **RICKLE**, n. *rĭk'l*, in *Scot.*, a small heap. **RICK-CLOTH**, n. tarpaulin or canvas cloth placed over ricks or stacks to protect them from wet. **RICK'STAND**, n. the foundation of timber, or other material, on which a rick is built.

RICKAREES, *rĭk-a-rēz'*, or **ARICARAS**, *a-rĭk'a-ras*: tribe of Pawnees (q.v.), otherwise known as Rees, or Black Pawnees; named Arickaree in govt. reports; called by themselves Starrahhé or Pauani. Originally very numerous, they separated from the Platte valley Pawnees in the 18th c., and led a wandering life, were greatly reduced by small-pox and wars with other tribes and with whites, until 1862, when they were settled on the Fort Berthold reservation (junction of the Yellowstone and Missouri rivers) with the Mandans and Minnetarees. In 1884 the R. numbered 544; (1890) 435; of these, 400 wear civilized dress, the rest in part; 70 per cent. follow civilized pursuits; houses occupied 100; bushels of grain annually raised 4,600, of vegetables 1,900; tons of hay 900. They have a missionary, who counts 48 church members.

RICKETS, n. plu. *rĭk'ĕts* [properly *wrickets*—from *wrick*, twist: the technical term *Rachitis* is simply a Grecized form of the Eng. word, and not a true formation from Gr. *rhache*, backbone]: constitutional disease, characterized chiefly by a curvature of the shafts of the long bones of the arms and legs, and enlargement of their articular extremities—the result of deficient appropriation of earthy principles by their structures. **RICK'ETY**, a. *-ĕt-ĭ*, affected with rickets; feeble in the joints; imperfect and unstable.—*Rickets* is regarded by some writers as a special disease of the bones, and by others as merely one of the various forms of scrofula. Which-ever view be correct, there can be no doubt that the general symptoms in R. are closely allied to those in scrofula, and that the same general plan of treatment is equally useful in both affections. The characteristic symptom in R. is the imperfect development, atrophy, softness, and consequent distortion of some or many of the bones. The bones thus affected consist of a sort of gelatinous tissue, which will bend without breaking; and they are so soft that they may be cut with a knife. On microscopico-chemical examination, the structural

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arrangement of the bone is found to be unaffected, while there is great deficiency of the earthy salts to which the normal bones owe their firmness. While 100 parts of healthy bone contain about 32 per cent. of organic matter and 68 per cent. of inorganic matter or earthy salts, the proportions are altogether reversed in R. Thus, in this disease, Marchand found 79·4 per cent. of organic matter and 20·6 of earthy salts in a femur; while Ragsky found 81·12 per cent. of organic matter and only 18·88 of earthy salts in a humerus: thus these bones contained less than one-third of the normal quantity of earthy salts. The weight of the body acting on bones thus constructed causes them to bend, and the thighs or shins are abnormally arched, or the spine is curved, or, in slighter cases, only the normal form of the ankle is modified. In aggravated cases, the chest is so affected as to give rise to the condition known as *pigeon-breasted*; the lower jaw is imperfectly developed, and the teeth project; and the pelvis becomes so altered in form as to render future child-bearing in the highest degree perilous. R. is exclusively a disease of childhood, and generally attacks the children of the poor.

The treatment must be mainly directed to improvement of the general health. Free exposure to pure bracing air, sponging with sea-water, or sea-bathing if the little patient can bear it, an abundance of animal food, cod-liver oil, iron, and quinia, include all that need be said about general treatment. Some physicians have recommended the administration of lime salts—e.g., a jelly containing lime phosphate—in order to give to the bones the elements in which they are deficient. But trial of this treatment has not been satisfactory.

When a child with crooked legs is brought to a surgeon, he must carefully ascertain whether the crookedness depends on mere relaxation of the joints, or whether it lies in the bones themselves. In the former case, the child will probably grow up straight when his general health improves; whereas in the latter case (if the femur or tibia is absolutely bent), the surgeon must give a very guarded opinion.

RICKETTS, *rik'êts*, JAMES BREWERTON: soldier: 1817, June 21—1887, Sep. 22; b. New York. He graduated from West Point 1839; served as an artillery officer on the Canada line, in the Mexican war, the Seminole war, and afterward on the Texas border. In the civil war he won distinction at the battle of Bull Run, where he was wounded and taken prisoner, was wounded at the second battle of Bull Run, commanded the corps of Gen. Hooker after the latter was wounded at Antietam, and was again wounded at Cedar Creek, Va. He took part in many other battles. By various promotions he reached the rank of brig.gen. vols., and by brevets that of maj.gen. U. S. army. He was mustered out of the vol. service 1866, Apr. 30; and was retired the following year for disability caused by wounds, but served on courts-martial till 1869. He died at Washington.

RICKMAN, *řik'man*, THOMAS: English architect: 1776-1841, Mar.; b. Maidenhead. He tried several employments in early life, managed his father's business of druggist, and afterward became a clerk in an insurance office, though he seems to have always had a love for architecture. In 1808 he began to give his full attention to it, and wrote the classification of Gothic styles, which has rendered him famous. He first pointed out the features which distinguish the different periods of that style. He divided it into four periods, Norman, Early English, Decorated, and Perpendicular (q.v.); and these names and the periods that he assigned to them are still the most frequently used. He became an architect in Birmingham, and designed numerous buildings, especially churches. His work, *An Attempt to Discriminate the Styles of Architecture in England from the Conquest to the Reformation*, has passed through several editions—the best that by Parker of Oxford (1847).

RICOCHET, n. *řik'ō-shā'* or *řik'ō-shět'* [F. *ricochet*, a rebound on the water, duck and drake]: in *gunnery*, the firing of shot or shell in such a manner as to insure its striking the ground at a certain point, and afterward bounding along the surface; the guns fired for ricochet are but slightly elevated, and have a diminished charge. **R.** firing is extremely efficient both in its actual and in its moral effect in clearing the face of a ravelin, bastion, or other rather long line of fortification. If well directed, the **R.** shot bounding along will dismount guns, scatter the gunners, and intimidate the garrison. Vauban first introduced **R.** firing at the siege of Philipsburg 1688. The defense against it consists in earthen traverses along the threatened line, or in a bonnet (see FORTIFICATION) at the point of parapet nearest the enemy. In the field, **R.**, where the shot or shell is made to bound forward at least ten times, produces most disastrous and demoralizing effects on masses of cavalry and infantry, whom it hews down in long lines. **RICOCHE**T, v. to fire shot or shell from a gun so as to bound along the surface. **RIC'OCHE**T'ING, imp. *-shět'ting*. **RIC'OCHE**T'ED, pp. *-shět'ed*.

RICORD, *re-kor'*, PHILIP, M.D.: French physician: 1800, Dec. 10—1889, Oct. 22; b. Baltimore, Md.; son of a wealthy shipowner who had gone to that city 1790 to repair his fortunes. **R.** went 1820 to Paris, where he was attached in succession to the Hôtel-Dieu under Dupuytren, and to the Pitié under Lisfranc. He graduated M.D. 1826; but was unable, from scantiness of his private means, to begin practice in Paris. His professional career, therefore, commenced at Olivet, near Orleans, and was thence transferred to Croüy-sur-Ourcq, where he rapidly rose to distinction. In 1828 he returned to Paris, where he delivered two annual courses of lectures at the Pitié on surgical operations; and was appointed surgeon-in-chief to the hospital for venereal diseases. This post he held with brilliant success till

RICTUS -RIDDEN.

his retirement 1860, Oct. It was here that he won world-wide reputation in his specialty—a reputation due to his combination of accurate physiological and pathological knowledge with great manual dexterity as a surgeon, and felicitous inventiveness and resource as a physician. He improved the classification of enthetic diseases; and at the Venereal Hospital delivered annually, from 1834, a course of lectures on syphilology. For his suggestions on the cure of varicocele and on the operation of urethroplasty he received 1842 one of the Montyon prizes. R.'s practice was long the most extensive and the most lucrative in Paris, insomuch that, while an inmate of the debtors' prison at Clichy, he was literally besieged by crowds of patients. He became successively member of the Acad. of Medicine (section of surgical pathology); member of the Surgical Soc.; and consulting surgeon to the Dispensary of Public Health. In 1862, he was appointed physician in ordinary to Prince Napoleon; and 1869 consulting surgeon to the emperor; having 1860, Aug. 12, been raised to the distinction of commander of the Legion of Honor. His works are numerous, the more important being: *On the Employment of the Speculum Biviale* (1833), invented by himself; *On the Blennorrhagia of the Female* (1834); *On the Employment of Mercurial Ointment in the Treatment of Erysipelas* (1836); *The Monography of Chancre* (in which he gives a detailed exposition of his own system); *Theory of the Nature and Treatment of Epididymitis* (1838); *Treatise on Venereal Maladies* (1838); *On Blennorrhagic Ophthalmia* (1842); *Iconographical Clinic of the Venereal Hospital* (1842-51); and *On Syphilization and the Contagion from Secondary Accidents* (1853). He has also contributed to the medical journals a multitude of Memoirs, Observations, Researches, and Communications on his specialty. His latest works are entitled *Letters on Syphilis* (3d ed. 1863), and *Lectures on Chancre* (2d ed. 1860), remarkable for fluency and grace of style.

RICTUS, n. *řik'tūs* [L. *rictus*, the mouth wide open—from *ringor*, I show the teeth]: in *bot.*, among labiate or lipped corollas, the condition of the lower lip pressed against the upper, so as to leave only a chink between them.

RID, v. *řid* [AS. *hreddan*; Icel. *hrioda*, to clear away: Dan. *rydde*, to grub up, to clear: Ger. *retten*, to deliver: Dut. *redden*; Bav. *rieden*, to clear away: Scot. *red*, to set in order]: to free; to deliver; to clear away; to disencumber; to remove by violence: **ADJ.** clear; delivered; freed. **RID'DING**, imp. **RID**, pt. pp. **RID'DANCE**, n. *-dans*, act of clearing away; deliverance; escape. **TO GET RID OF**, to free one's self from.

RIDDEN: see under **RIDE**.

RIDDLE.

RIDDLE, n. *řid'dl* [AS. *hriddel*; Ger. *räiter*; Bret. *ridel*, a corn-sieve]: an instr. for separating grain from the chaff, or for separating larger from smaller particles; a sieve: V. to separate, as grain from the chaff, with a riddle; to make numerous holes or openings in, as with balls or shot; to make many little holes in. **RID'DLING**, imp. **RID'DLED**, pp. *-dld.*

RIDDLE, n. *řid'dl* [AS. *rædelse*, a dark speech—from *rædan*, to read: OHGer. *ratsal* or *radisli*; Ger. *räthsel*, a riddle: Bav. *râten*; Dan. *raade*, to divine, to imagine]: something proposed for solution by guess or conjecture; a puzzling question; an enigma; anything ambiguous or puzzling: V. to make riddles; to speak obscurely. **RID'DLING**, imp. **RID'DLED**, pp. *-dld.* **RID'DLER**, n. *-dlér*, one who speaks obscurely or ambiguously.—A *Riddle* is a paraphrastic presentation of an unmentioned subject, the design of which is to excite the reader or hearer to the discovery of the meaning hidden under a studied obscurity of expression. In the present day, the R. is a mere *jeu d'esprit*—a sort of witty pastime for idle people, and is usually in the form of Conundrum (q.v.); but anciently—and its antiquity is very great—it held far more important place, though in its inferior phase of conundrum likewise it was a part of the intellectual entertainment at Greek, and latterly at Roman banquets. Among the easterns, it naturally associated itself with their symbolical modes of thought, and was, as it still is, abundantly employed for didactic purposes. The so-called Proverbs or sayings attributed to Solomon frequently assume the form of riddles. Every reader of the Old Test. is familiar with the R. which Samson proposed to the Philistines, and the 'enigmas' (as the Septuagint has it) that the Queen of Sheba proposed to Solomon, though it is doubtful if the latter were more than hard or difficult questions plainly put. The R. is found in the Koran, and several books of riddles exist in Arabic and Persian. They seem to have been known to the ancient Egyptians, and among the Greeks they were allied in the earliest times with the *oracula*, or mystic utterances of the inspired priests, and were generally, as is the case with Samson's R., in verse; but in Greece they came into vogue about the time of the 'Seven Wise Men,' one of whom, named Kleobulos, as also his daughter Kleobuline, was celebrated for the composition of metrical riddles (*griphoi*), some of which are still remembered. Even the greater poets did not disdain to introduce the R. into their writings, or to devote whole poems to the subject—e.g., the *Syrinx*, commonly ascribed to Theocritus. Homer, according to a statement in Plutarch, died of chagrin at not being able to solve a R.; and the R. of the Sphinx (see **ŒDIPUS**) is probably the most celebrated in the whole circle of philosophical puzzles. Among the Romans, professional riddle-makers did not appear till the latest period of Roman literature, the reason assigned for which is

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the superior gravity and earnestness of the Roman genius. Appuleius wrote a *Liber Ludicrorum et Griphorum*, but it is not extant.

The R., more perhaps as an amusement for the baronial hall on winter-nights, or for the monastic mess-room, than as a serious intellectual effort, was much cultivated in the middle ages. This character of lively or amusing puzzle it has ever since for the most part retained. Many specimens of what would now be termed 'riddle' or 'conundrum' books exist in French, English, and German collections of manuscripts, and were printed at an early period. One of these, entitled *Demands Joyous*, which may be rendered 'Amusing Questions,' was printed in English by Wynkin de Worde, 1511. Many of these 'joyous demands' are simply coarse jests; but others are really fitted to excite risibility—e.g., Demand: 'What is that that never was and never will be?' Response: 'A mouse's nest in a cat's ear.'—'What is the worst bestowed charity that one can give?' 'Alms to a blind man; for he would be glad to see the person hanged that gave it to him.' The Reformation, at least in Prot. countries, checked riddle-making; but in the 17th c. it began to creep into favor again. Le Père Ménestrier, learned Jesuit, wrote a grave treatise on the subject; and in France, riddles soon rivalled in popularity the madrigals and sonnets of the period. In the 18th c., the taste for riddles increased, and most of the brilliant French *littérateurs*—e.g., Boileau, Voltaire, and Rousseau—did a little in this line, until, finally, the *Mercure de France* became a fortnightly repository of riddles, the solution of which was sufficient to make a reputation in society. In Germany, Schiller gave the R. a broader development. Riddles, as a factor in the intellectual development of barbarous peoples, are interesting to students of folk-lore. See Friedrich's *Geschichte des Räthsels* (1860); Tylor's *Primitive Culture*.

RIDE, v. *řid* [Icel. *reida*, to sway, to move up and down, as a ship at anchor; *řida*, to be borne in a ship or on a horse: Dut. *rijden*, to ride: Ger. *reiten*; Sw. *řida*; Dan. *řide*; AS. *řidan*, to ride]: to be borne or carried along, as in a carriage or on horseback; to sit on a horse, and so be carried along; to be supported in motion; to sit or rest on so as to be carried; to be at anchor, as a ship: N. an excursion on horseback or in a vehicle; a drive; the course or road passed over in riding. RIDING, imp.: ADJ. employed for travelling on horseback; suitable for riding on, as a riding-horse: N. the act of one carried on a horse or in a carriage. RODE, pt. *řod*, did ride. RIDDEN, pp. *řid'n*, been carried or borne along, as on horseback. RIDER, n. *ři'dér*, one who rides; one who breaks or manages horses; an addition made to a MS., etc., and inserted after its completion; anything added to strengthen; a deduction to be drawn from a mathematical theorem; in *mining*, portions

RIDEAU—RIDGEL.

of the cheek of a vein of ore, which are mingled with masses of ore. **RI'DERED**, a. *-dêrd*, mingled with masses of ore. **RI'DERS**, n. plu. *-dêrz*, the interior ribs to strengthen and bind the parts of a ship together. **RI'DERLESS**, a. *-lës*, without a rider. **RIDING-BITTS**, n. two strong upright timbers near the bows of a ship, to which the cable is secured; they extend through two decks, are connected by a cross-piece, and are braced against the strain of the cable by horizontal standards bolted to the deck beams. **RIDING-HABIT**, *-hăb'it*, the long upper garment worn by ladies on horseback. **RIDING-PART**, n. a protuberance on the inner surface of the joint part of a scissors-blade, which forms the touching portion back of the rivet. **RIDING-RHYME** [said to be named from the riding pilgrims of the Canterbury Tales]: a metre of five accents, each accent falling on the even syllable, and having the lines in rhyming couplets. **RIDING-SCHOOL**, a place where the art of riding is taught. **RIDING-MASTER**, a teacher of the art of riding. **TO RIDE ROUGH-SHOD OVER ONE**, to be overbearing or oppressive; to act tyrannically.

RIDEAU, n. *rê-dô'* [F., a curtain, *a rideau*]: in *fort.*, a small elevation of earth, extending lengthwise on a plain, serving to cover a camp from the approach of an enemy, or to give other advantages to a milit. post.

RIDGE, n. *rĭj* [AS. *hrycg*; Low Ger. *rugge*; Dan. *ryg*; Ger. *rücken*, the back]: anything formed like the back of an animal; a long horizontal elevation from which the surface slopes down on each side: a strip of soil formed in plowing, consisting of a crown, two flanks, and two furrow brows, the hollow space between ridges being called the open furrow: the angular top of the roof of a building; a raised or elevated line: V. to cover with or form into ridges; to rib or wrinkle. **RIDG'ING**, imp. **RIDGED**, pp. *rĭjd*. **RIDGY**, a. *rĭj'i*, having ridges; rising in a ridge. **RIDGE'-BAND**, n. that part of the harness which goes over the saddle on a horse's back, and, being fastened on both sides, supports the shafts of the cart. **RIDGE'-BONE**, n. the backbone. **RIDGE'-POLE**, n. piece of board or timber forming the ridge of a roof; a ridge-piece or ridge-plate. **RIDGE'-ROPE**, n. in *naut.*, a rope leading from the knight-head to the upper part of the bowsprit cap, for the safety of the men walking out upon the bowsprit in rough weather: the centre rope of an awning: a safety-line extended from gun to gun in bad weather. **RIDGE-TILES**, tiles forming the ridge or apex of a roof. **RIDGE AND FURROW**, the alternate elevations and depressions of plowed land.

RIDGEL, n. *rĭj'ël*, or **RIDGE'LING**, n. *-lĭng* [Norw. *rigla*, to rock or waver: comp. Manx, *reagh*, ruttish, wanton (see **RIG** 2)]: a ram imperfectly castrated, and consequently liable to excited movements under the sexual impulse.

RIDICULE—RIDLEY.

RIDICULE n. *rĭd'ĭ-kŭl* [L. *ridĭc'ŭlus*, laughable, droll—from *ridĕrĕ*, to laugh: It. *ridicolo*; F. *ridicule*, ridiculous]: remarks designed to excite laughter, with some degree of contempt; mockery; satirical remarks: V. to treat with contemptuous merriment; to mock; to deride; to sneer at. **RID'ICULING**, imp. **RID'ICULED**, pp. *-kŭld*. **RID'ICULER**, n. *-kŭ-lĕr*, one who ridicules. **RIDICULOUS**, a. *rĭ-dĭk'ŭ-lŭs*, exciting ridicule; laughably absurd. **RIDIC'ULOUSLY**, ad. *-lĭ*. **RIDIC'ULOUSNESS**, n. *-nĕs*, the quality of being ridiculous.—**SYN.** of 'ridicule, n.': mockery; banter; wit; derision; raillery; burlesque; irony; satire; sneer; jeer; sarcasm; lampoon;—of 'ridiculous': droll; absurd; laughable; ludicrous; preposterous; risible.

RIDING, n. *rĭd'ĭng* [a corruption of OE. *thrithing*; Icel. *thridjungr*; Norw. *tridjung*, a third part]: one of the three divisions into which the county of York, England, is divided, termed respectively East, West, and North R. A similar division existed in several other counties in the Anglo-Saxon period; there were the *laths* of Kent, the *rapes* of Sussex, the *parts* of Lincoln. The trithing, lath, or rape was formed of three or more hundreds, and presided over by a trithing-man or lath-grieve. In *Domesday Book*, we find Yorkshire divided, as at present, into three ridings, and sub-divided into wapentakes. See **WAPENTAKE**.

RIDLEY, *rĭd'lĭ*, **NICHOLAS**: one of the most noted leaders of the Reformation in England: about 1500-1555, Oct. 16; b. Northumberland. He was educated at the foundation-school of Newcastle-upon-Tyne, and at Pembroke Hall, Cambridge. He became a fellow of this college 1524, and ultimately president. The spirit of the Reformation had begun to penetrate the universities of Oxford and Cambridge. Tyndale and Bilney had taught the new doctrines in Cambridge; and Ridley, no less than Cranmer and Latimer, all Cambridge students about the same period, had probably caught something of their spirit. This reforming tendency was greatly strengthened in R. by a tour on the continent of Europe after completing his studies. He met some of the most active Reformers abroad, and after three years he returned with his principles firmly grounded in favor of the new course of things. He became proctor to the Univ. of Cambridge, and in this capacity protested against the claims of the papal see to supreme ecclesiastical jurisdiction in England. He was also chosen public orator, and, under the patronage of his friend Cranmer, was advanced first to be one of the king's chaplains, and 1547 nominated bp. of Rochester. He distinguished himself by vehement denunciation of the idolatrous use of images and of holy water, and soon became one of the most prominent, as he remained one of the most consistent and inflexible, supporters of the Reformed doctrines. He joined actively in the measures of Edward VI.'s reign, and on the deprivation

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of Bonner, Bp. of London, Ridley became his successor, three years after his elevation to the see of Rochester. In this high position he distinguished himself by 'his moderation, his learning, and his munificence.' He earnestly promoted the Reformation, yet without bigotry or intolerance; he exerted himself in the foundation of Christ's Hospital, and of the hospitals of St. Bartholomew and St. Thomas in Southwark, the two latter of which have become eminent as schools of medicine—the former as a school of classical and general instruction. He assisted Cranmer in the preparation of the 41 articles of doctrine, afterward reduced to 39. On the death of Edward VI., he warmly espoused the unfortunate cause of Lady Jane Grey; and on its speedy failure, and the accession of Mary, his known connection with it, as well as his general activity in the cause of the Reformation, exposed him to the vengeance of the papal party, again ascendant. He was committed to the tower 1553; and in the subsequent year, when a convocation was convened at Oxford for discussion of the doctrine of transubstantiation, he was removed thither with Cranmer and Latimer, in order that he might engage in the discussion. It was not to be expected, however, that any good would issue from such a step as this. The discussion proved a mere pretense; the Reformers were adjudged defeated and obstinate heretics, and condemned to suffer at the stake. R. was led forth to be burned, with his friend and fellow-reformer, Latimer. He suffered in front of Balliol College, cheerful, steadfast, and consistently enduring, as he had been throughout his life. He was, according to Burnet, one of the ablest of all who advanced the Reformation in England. His character was pure, elevated, and self-denying. Fox says of him, he was 'wise of counsel, deep of wit, benevolent in spirit.' His gentleness wins our sympathy, while his scholarly and calm intrepidity excites our admiration.

RIDOTTO, n. *rĭ-dōt'tō* [It. *ridotto*, retreat, rendezvous—from L. *reductus*, retired—from *re*, back; *ducĕrĕ*, to lead]: among *Italians*, a favorite entertainment of music and dancing generally held on fast-eves.

RIDPATH, JOHN CLARK: educator and author: 1840, Apr. 26 — —; b. Putnam co., Ind. He graduated at Asbury (now De Pauw) univ.; became instructor in Thornton Acad., and 1864 its president; was prof. in Baker Univ., Kan., 1867; prof. of English literature in Asbury Univ. 1869, and vice-pres. of that institution 1879. He was influential in securing a large endowment from Mr. De Pauw and in rechartering Asbury as De Pauw Univ., after which he resigned and applied himself to literature. Among his works are: *Academic History of the United States* (1874-5); *Popular History of the United States* (1876); *Great Races of Mankind* (1880-84).

RIEDESEL—RIENZI.

RIEDESEL, *rē'dēh-zēl*, **FRIEDRICH ADOLPH**, Baron **VON**: soldier: 1738, June 3—1800, Jan. 6; b. Lauterbach, Hesse. After studying law, he entered the army, served the British in the Seven Years' War, won distinction at the battle of Minden, and reached the rank of adjt.gen. of the army of Prussia 1767. He came to America 1776, with the rank of maj.gen., and in command of about 4,000 Hessian and other soldiers, hired by the British to aid in subduing the colonies, rendered valuable service in Canada, at Ticonderoga, and other points; was captured at Saratoga; and after being exchanged was in command on Long Island. He returned to Germany 1783, became lieut.gen. 1787, for some time commanded the Brunswick soldiers in Holland, and for about 6 years previous to his death was in command of the city of Brunswick. His *Memoirs, Letters, and Military Journals*, 2 vols., pub. in Germany, were translated and issued in this country (1868).—His wife, **FREDERICA CHARLOTTE LOUISA VON R.** (1746–1808), b. Brandenburg, dau. of the Prussian minister Von Massow, was a woman of great beauty and varied accomplishments, joined her husband in Canada 1777, and was with him during the remainder of his stay in this country. She cared for the sick and wounded, and won the respect of the soldiers. Her *Letters and Journals Relating to the War of the American Revolution* were reprinted in this country (1867).

RIENZI, *rē-ēn'zē*, **COLA DI**: famous Roman tribune: 1313–1354, Oct. 8; b. Rome. His parentage was humble, his father being a tavern-keeper, named Lorenzo (by abbreviation Rienzo), and his mother a washerwoman. Until his 20th year, he lived among the peasants of Anagni; then he returned to his native city, where he studied grammar and rhetoric, read and re-read the Latin historians, philosophers, and poets (Greek was scarcely yet known in Italy); and excited his imagination, while at the same time he colored his speech, with the prophetic enthusiasm of the inspired writers. The assassination of his brother by a Roman noble, whom he found it impossible to bring to punishment, is supposed to have determined him to deliver the city from the barbarous thralldom of the barons. In 1343 he was appointed by the heads of the Guelph party spokesman of a deputation to the papal court at Avignon to beseech Clement VI. to return to Rome for protection of the citizens from their oppressors. Here he formed a close friendship with Petrarch, through whom he obtained a hearing from the pope, who appointed him notary to the city chamber. 1344, Apr., R. returned home, and sought countenance from the magistrates in his ideas of reform; but reform, he found, was impossible without revolution. During three years, he loudly—perhaps even ostentatiously—menaced the nobles; for the enthusiasm of R., though sincere, was showy and vain. The nobles took no steps to crush him, for the reason that they thought him mad. At last, when R. thought

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he could rely on the support of the citizens, he summoned them together 1347, May 20; and surrounded by 100 horsemen, and in presence of the papal legate, he delivered a magnificent discourse, and proposed a series of improved laws. The laws were accepted, the aristocratic senators were driven out of the city, and R. was invested with dictatorial power. He took the title 'tribune of liberty, peace, and justice,' and chose the papal legate for his colleague, but reserved to himself the direction of affairs. The pope confirmed the eloquent dictator in his authority; all Italy rejoiced in his success. A bright dream now seems to have flashed across R.'s imagination—the unity of Italy and the supremacy of Rome. Every great Italian has dreamed that dream from Dante to Mazzini. R. dispatched messengers to the various Italian states, requesting them to send deputies to Rome to consult for the general interests of the peninsula, and to devise measures for its unification. These messengers were everywhere received with enthusiasm; and 1347, Aug. 1, in the Lateran Church, 200 deputies assembled; and R. declared that the choice of an emperor of the Holy Roman Empire belonged to the Roman people, and summoned Ludwig of Bavaria and Karl of Bohemia, disputants for the dignity, to compare before him. The step was wildly impolitic. R. had no *material* power to enable him to give efficacy to his splendid assumption; the pope was indignant at the transference of authority from himself to his subjects; and the barons, taking advantage of certain ceremonial extravagances which the dictator had committed, and which had diminished the popular regard for him, gathered their forces, and renewed their devastations. After ineffectual resistance, R. resigned his functions, weeping all the while, and withdrew from Rome, which was entered by the barons two days after. His tenure of power had lasted only seven months. In the solitudes of the Neapolitan Apennines, R. seems to have recovered his enthusiasm and his faith. Regarding his fall as a just chastisement of God for his love of worldly vanities, he joined an order of Franciscan hermits, and spent nearly two years in exercises of piety and penitence—all the while, however, cherishing the hope that he would one day 'deliver' Rome again. This ambition to play a distinguished part made him readily listen to a brother-monk, who, about the middle of 1350, declared that, according to the prophecies of Joachim of Flores, of Cyrillus, and of Merlin, R. was destined, by the help of Emperor Karl IV., to introduce a new era of happiness into the world. R. betook himself at once to Prague, and announced to the emperor that in a year and a half a new hierarchy would be established in the church, and under a new pope. Karl would reign in the West, and R. in the East. Karl, not knowing what to say in reply to such language, thought it safest to put the 'prophet' in prison, and then wrote to report the matter to his friend the pope. 1351, July, R. was transferred to

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Avignon, where proceedings were opened against him in reference to his exercise of tribunitial power. He was condemned to death, but his life was spared at the earnest entreaties of Petrarch and others; and the next two years were spent in an easy confinement in the French papal city. Meanwhile affairs at Rome had become worse than ever: the great families were even more factious, more anarchical, more desperately fond of spilling blood than formerly; and at last Innocent VI. sent Cardinal Athornoz to re-establish order. R. was also released from prison, and accompanied the cardinal. A residence was assigned him at Perugia; but 1354, Aug., having borrowed money, and raised a small body of soldiers, he made a sort of triumphal entry into Rome, and was received with universal acclamations. But his character, never of strong and consistent fibre, showed impairment and debasement; he abandoned himself to sumptuous living, and his once generous sentiments had given place to a hard, mistrustful, and cruel disposition. The barons refused to recognize his government, and fortified themselves in their castles. The war against them necessitated the contraction of heavy expenses; the people grumbled; R. only grew more severe and capricious in his exactions and punishments. In two months his rule had become intolerable, and an infuriated crowd surrounded him in the capitol, and put him to death with ferocious indignities.

RIESENGBIRGE, *rě-zén-géh-břrch'éh* (giant mountains): mountain range about 23 m. long by about 12 m. broad, between Bohemia and Prussian Silesia: see **BOHEMIA**.

RIESI, *rě-ā'zě*: town of Sicily, province of Caltanissetta, and 13 m. s. from Caltanissetta, at the base of a mountain of the same name, not far from the left bank of the Salso. There are sulphur mines in the mountain.—Pop. about 12,000.

RIETI, *rě-ā'tě* (ancient, *Reate*): city of central Italy, province of Perugia in Umbria, at the foot of a hill, on the banks of the Velino, 45 m. n.e. of Rome. It is walled, its streets are regular, it has a fine cathedral and many benevolent institutions, and is the seat of an archbishop. R. was a noted city of the Sabines.—Pop. 12,900.

RIEVER, or **REIVER**, n. *rěv'ér* [Scot.]: a robber; a moss-trooper.

RIFACIMENTO, n. *rě-fâ-chě-mě'n'tō* [It.]: a remaking or re-establishing; specifically applied to the process of recasting literary works so as to adapt them to changed circumstances.

RIFE, a. *rřf* [Ger. *reif*, mature: O. Dut. *rřff*, copious: Icel. *rřfr*, liberal; *rřfka*, to increase]: prevalent, used of epidemic diseases; abounding; plentiful. **RIFE'LY**, ad *-lě*. **RIFE'NESS**, n. *-něs*, abundance; prevalence.

RIFF—RIFFLE.

RIFF, *rĭf*, **THE** : portion of the coast of Morocco from Tangier on the w. to near the w. frontier of Algiers, about 210 m. long, 58 broad. The name, in the Berber language, which is that of the inhabitants, signifies a mountainous and rugged coast. The Riff Mountains, near and parallel to the coast, are green and wooded, and are here and there intersected transversely by fertile valleys or deep ravines, each with its brook or rivulet descending to the Mediterranean. The R. region is separated from the parallel mountain chain s. of it by an extensive, fertile, and well-watered plain, in which stands the city of Fez. The inhabitants of the R. are almost wholly Berbers, employed in feeding and breeding cattle, in fishing, and occasional piracy. On account of the injuries inflicted by their piracies on merchant vessels, most of the maritime states of Europe agreed to pay an annual sum as quit-money. When, 1828, Austria declined further payment of the tax, a Venetian vessel was seized by the Riffians in the harbor of Rabat ; but the arrival of an Austrian fleet off the port produced restitution of the ship and its cargo, as well as formal renunciation of all further claims. France followed the same course by declaring war against the sultan of Morocco, and obtained compensation 1844, after which period piracy diminished. See MOROCCO. The sultan had always discountenanced piracy, but his authority in the R. was too weak to compel obedience.

RIFFLE, n. *rĭf'ł* [Ger. *riffeln*, to groove] : an inclined trough or chute down which auriferous slime or sand is conducted in a gentle stream broken by occasional slats, or by depressions containing mercury, which arrests the gold.

RIFFLER—RIFLE-BIRD.

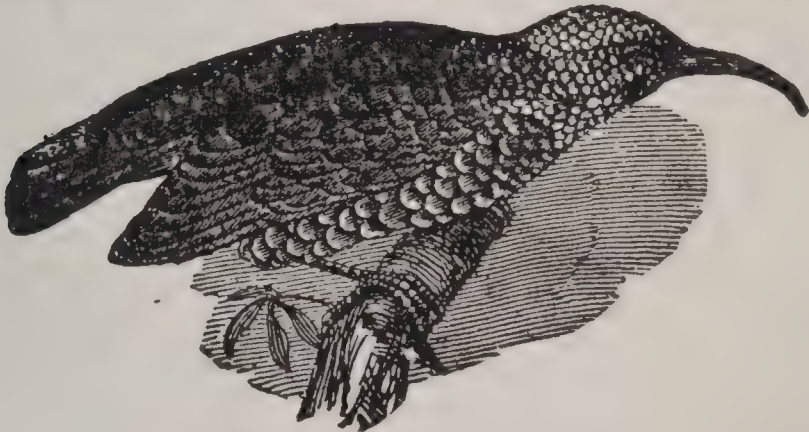
RIFFLER, n. *rīf'ler* [Ger. *riffel-feile*] : a file with a side so convex as to operate in shallow depressions ; used by sculptors, carvers, and gun-stockers.

RIFFRAFF, n. *rīf'rāf* [*rif*, and *raff* : OF. *rif-ni-raf*, of everything, every atom : It. *raffola-ruffola*, by hook or by crook (see also **RAFF**)] : refuse and sweepings ; dregs ; scum of anything, as of society ; the rabble.

RIFLE, v. *rīfl* [OF. *rifler*, to ransack : Icel. *hrifa*, to catch : Dut. *riffelen*, to scrape : It. *raffa*, a rifling : AS. *reafian*, to rob, to spoil] : to ransack ; to sweep away ; to pillage ; to plunder. **RIFLING**, imp. **RIFLED**, pp. *-fld*. **RIFLER**, n. *-flér*, a robber.

RIFLE, n. *rīfl* [Low Ger. *rifeln*, to streak, to furrow : Dan. *rifle*, to groove a column : Ger. *riefe*, a furrow ; *riefen*, to rifle] : musket or other gun, the inside of the barrel of which is grooved or formed with spiral channels to make the bullet revolve (see **RIFLED ARMS**) : V. to channel or groove. **RIFLING**, imp. **RIFLED**, pp. *-fld*. **RIFLEMEN**, n. *-fl-mén*, body usually of sharpshooters or light infantry armed with rifles—called by the French *tirailleurs* ; but the name has nearly lost meaning, as nearly all infantry are now riflemen. **RIFLE-GREEN**, n. a very dark green, verging on black. **RIFLE-PITS**, in *mil.*, holes or short trenches, about 4 ft. long and 3 ft. deep, forming, with the earth thrown out of them, cover for two men.

RIFLE-BIRD (*Ptiloris Paradiseus*) : bird of the family *Upupidæ*, with long curved bill, and in size about equal to a large pigeon. It inhabits s.e. Australia, and is found only in very thick 'bush.' The male is regarded as more splendid in plumage than any other Australian



Rifle-bird (*Ptiloris Paradiseus*).

bird. The upper parts are velvety black, tinged with purple ; the under parts velvety black, diversified with olive-green. The crown of the head and the throat are covered with innumerable little specks of emerald green of brilliant lustre. The tail is black, the two central feathers rich metallic green.

RIFLED ARMS.

RIFLED ARMS: fire-arms with one or more spiral grooves along the interior of the barrel; invented to remedy certain defects essentially connected with cylindrical smooth-bore guns. These defects, due chiefly to atmospheric resistance, show themselves in the erratic motion of the ball, especially when fired at long range, and arise from the following causes: *First*, The ball never fits tightly; in consequence its centre is below the centre of the bore, and a portion of the explosive force of the powder escapes over the top of the bullet, and is not only wasted, but exercises a downward pressure on the ball, tending to squeeze it *into* the under side of the barrel; and so great is this pressure, that in guns of soft metal, as brass, a perceptible dint is produced after a few rounds. Another and more important consequence of the looseness of the ball is, that the action of the powder on it is necessarily irregular, and its resulting motion along the barrel is a series of oblique impacts, now against one side, now against the other, and the direction of its motion after expulsion is necessarily not in line with the axis of the barrel, and depends on the side of the barrel with which it was last in contact. *Secondly*, Balls can never be perfectly homogeneous, and the violent and sudden pressure of the exploded powder produces a slight change of shape; consequently, the centre of gravity can never accurately coincide with the centre of the sphere, the air resists its forward motion unequally, and true flight is precluded.

Thirdly, As a consequence of the friction of the ball against the sides of the barrel, it acquires a rotatory motion, the direction of its rotation after expulsion being determined by the particular point of the muzzle with which it was last in contact. Thus, if it finally touched the top or bottom of the muzzle, the plane of rotation of the anterior surface of the ball would be in line with its progressive motion, and the rotation would be in an upward or downward direction; if it last rebounded from the right side, the plane of rotation would be in line with its path, and the rotation of the anterior surface from left to right, and so on. The ball, in its rapid flight, compresses the air in front, and produces a vacuum behind; the denser, because more compressed, air in front attempts to rush round the sides of the ball to fill up the vacuum. Now (see fig. 1), let us suppose that the ball, while in rapid advance, is also revolving in a horizontal plane, and from left to right; the side A, whose rotation conspires with the

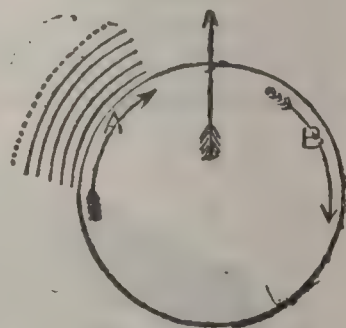


Fig. 1.

Horizontal section of a spherical bullet, the straight arrow showing the direction of its forward motion or *motion of translation*, and the curved arrows that of its motion of rotation. The ball, in this instance, is supposed to have struck against the *right* side of the muzzle.

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motion of translation, resists, by its friction, the attempt of the air to reach the vacuum by that side; while the side B, whose rotation is against the motion of translation, conspires to aid the air in reaching the vacuum. It follows from this, that the air is denser in front of A than in front of B; its resistance on the side A is greater than that on B, and the ball, in consequence, is deflected toward the side on which the resistance is least (toward the right in this instance). If the ball struck the top of the muzzle, its revolution would be in a vertical plane in line with the barrel, and in an upward direction, under which circumstances the ball would tend, first, downward from the first reason, and then upward from the third; while, if it struck the bottom of the muzzle, the contrary would be the case. It occurred to artillerists that these aberrations of the ball from its true theoretical path could best be counteracted by securing that the plane of rotation of the ball should be at right angles to its motion of translation; as the irregularities in its structure, which produce aberrations of the first and second kind, would thus act equally in all directions, producing an exact counterbalance, while the aberration from the ball's rotation would wholly disappear; and the constancy of the vertical transverse position of the plane of the ball's rotation was obtained by making one or more spiral grooves along the interior of the barrel.

As early as 1498, the citizens of Leipzig possessed the germ of the future rifle, for their arms had a grooved bore, but the grooves were straight. In 1520 Augustin Kutter (or Koster) of Nürnberg was noted for his rose or star-grooved barrels, in which the grooves had a spiral form. It took its name from the rose-like shape of the bore at the muzzle; and, setting aside superiority of workmanship subsequently developed, Kutter's arm was the veritable rifle: to him, therefore, so far as history shows, is due the invention of this terrible weapon, which reduces the flight of the projectile to a question of the individual skill of the marksman. The spiral groove gives to the bullet, if it fits into the grooves, a rotation rapid in proportion to the force of the explosion and the sharpness of the twist in the spiral. This revolution of the bullet on its own axis keeps that axis, gravity excepted, in the line in which it leaves the piece. In 1628 Arnold Rotsiphen patented a new way of 'makeing gonnes,' which, from a subsequent patent granted him 1635, appears to have consisted, among other improvements, in rifling the barrels. It would be tedious to enumerate the various principles of rifling which were tried during the two centuries following Rotsiphen: suffice it to say, that scarcely a form of rifling now prevails but had its prototype among the old inventions. The difficulty of mechanical appliances making the rifling true, however, deferred their general introduction, and the cost of rifled arms limited their use to the purposes of the chase. The revolutionary government of France

RIFLED ARMS.

had rifles issued to portions of their troops, but they met with so little success that Napoleon recalled them soon after he came to power. In the Peninsula, however, picked companies of sharpshooters, both English and French, used rifles with deadly effect. During the war with England, 1812-14, the Americans demonstrated incontestably the value of rifles in warfare; yet many years were to elapse before they were definitively placed in the hands of soldiers, many of those of every nation in the Crimean war having fought with the ineffective and almost ridiculous 'Brown Bess.' Soon after the French invaded Algeria, they had armed the Chasseurs d'Orleans with rifles, to counteract the superior range of the Arab guns. The inutility of the old musket was shown in a battle during the Kafir war, where the British discharged 80,000 cartridges, and the loss of the enemy was only 25 men struck. After experiments with the old musket, it was found that its aim had no certainty whatever beyond 100 yards. It was soon discovered that a spherical ball was not the best missile; one flying truer in which the longer axis coincided with the axis of the gun—the relative length of the axis and the shape of the head being matters of dispute. The first war-rifle was that of Capt. Delvigné, proposed 1826, and adopted for a few men in the French army; but this still included the old and rude plan of forcing the leaden ball through the grooves by blows of the ramrod. On this arm various improvements were made, till it was superseded by using with a grooved barrel the Minié bullet, which, being made smaller than the bore of the piece, could be almost dropped into the barrel. It was of lead, and in its base it contained a conical recess, to receive the apex of a smaller iron cup. The force of the explosion drove this cup into the bullet, causing the lead to expand into the grooves of the barrel. (It is right to add that this contrivance is claimed for a Mr. Greener as early as 1836.) The Prussians, meanwhile, had armed their troops with the needle-rifle (*Zündnadelgewehr*), now superseded by the *Mauser*. In England no improvement took place until 1851, when 28,000 rifled muskets to fire the Minié bullet were ordered. Notwithstanding the many advantages of the Minié system, it was found defective in practice. Experiments in all directions resulted 1853 in the Enfield rifle, which had three grooves, taking one complete turn in 78 inches, and fired a bullet resembling the Minié, except that a wooden plug was substituted for the iron cup: 1853-65, this was the weapon of the British army. In 1865 the adoption of Breech-loading Guns (q.v.) caused the Enfield to be converted into a breech-loader by fitting the 'Snider' breech mechanism to the Enfield barrel.

This arrangement was, however, only temporary, and after a most exhaustive series of trials, before a special committee on breech-loading rifles (including 104 different kinds), the Henry barrel was adopted 1871 in conjunction with the Martini breech for the new small-bore

RIFLED ARMS.

rifle for the British army, known as the Martini-Henry rifle. The Henry system of rifling is the invention of Alexander Henry, gunmaker, Edinburgh, and its essential peculiarity consists in the form of the rifled bore.

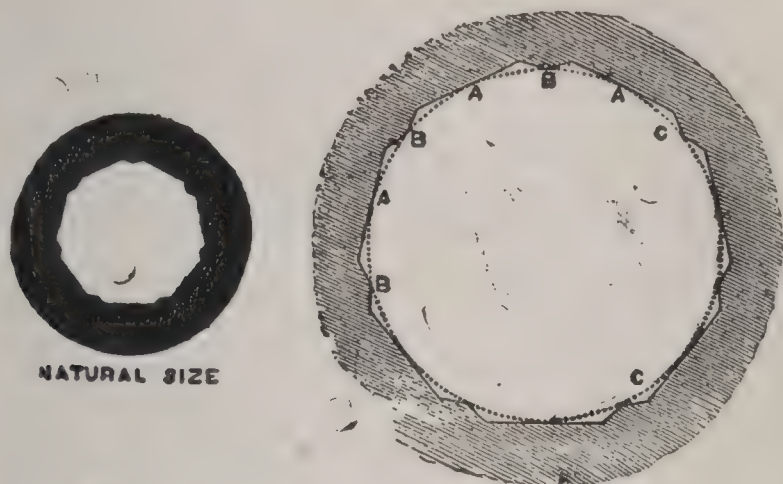


Fig. 2.

Fig. 3.

Figs. 2 and 3 represent an end section of a barrel rifled on this system. The rifling forms 7 plane surfaces A (fig. 3), and the periphery of the projectile, indicated by the dotted circle C, touches the planes A, at the centre. In addition to the bearing surfaces thus obtained, there are 7 angular projections B, which extend inward from the planes A, so that the apex of each of the projections B is concentric with the centre of the surfaces of its contiguous planes A. These angular ridges fill to a great extent the spaces between the angles of the planes A and the periphery of the projectile, thus reducing the windage, and from their peculiar construction facilitating expansion of the bullet to the major diameter of the bore, so that the rotatory or spiral motion of the projectile is obtained with greater certainty; at the same time, the figure of the projectile is so little altered that it traverses the air with less resistance, consequently with more accurate flight.

The length of the Henry barrel is $32\frac{1}{2}$ inches. The mean diameter of the bore is $\cdot 450$ of an inch, and the rifling takes one complete turn in 22 inches. Its bullet is solid, with a slight cavity in the rear, and weighs 480 grains, the charge of powder being 85 grains. The range, accuracy, and penetration of the 'Henry' barrel is nearly twice that of the Enfield-Snider barrel, while the highest point of its trajectory at 500 yards is 2 ft. lower, or 9 ft. as compared with 11 ft. The maximum range of the Henry barrel is about 3,200 yards at an angle of $28^{\circ} 15'$. The Springfield breech-loading rifle, for many years the U. S. army regulation rifle, is of $\cdot 45$ -inch calibre, and fires a 400-grain bullet with 70 grains of powder. It is noticeable for its great simplicity of construction, and has proved an excellent weapon, though now distinctly of an old school.

The term magazine arms or repeating arms is applied

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to firearms which contain, or have attached to them, a case, holding 4 to 10 (and more) cartridges, which, being in connection with the lock action of the weapon, supplies a reserve of ammunition for rapid firing in emergency; the arm is also capable of being used as a 'single-loader' on ordinary occasions. The idea is an old one, the first practical application of which was the revolver, if we except certain ancient flint-lock weapons. The best-known systems at the present time are the Spencer, Winchester, Vetterli, Krag, Kropatchek, Burton, Hotchkiss, Green, Jarman, Mauser, Lebel, and Mannlicher. All the great powers are adopting some form of magazine rifle for army and navy.

At the present time a revolution in firearms has taken place among all the military powers. The old rifles ranging in calibre from $\cdot 45$ to $\cdot 55$ inch have been discarded in favor of small-bore rifles. The present calibre averages a little over $\cdot 30$ inch, and the bullet is made very long to give it sufficient weight. The powder chamber is drilled out to an extra size, and the metallic cartridge fits it accurately. The bullet in many instances is cased with copper or German silver to increase its power of penetration. With these guns very high initial velocity is attained, giving a low trajectory and great range. A bullet fired from a rifle retains throughout its flight the original angle at which it left the piece. Hence at a high elevation these elongated projectiles, striking almost side-on, would make very bad wounds. But as the high initial velocity insures a low trajectory, it is believed that the new pieces, while more efficient, will be more merciful than their predecessors, and will produce a larger proportion of wounded men in proportion to the killed.

The introduction of Smokeless Powder (q.v.) is a necessary sequence of the use of rapid-firing magazine rifles. The military rifle of to-day is a magazine gun. In some—e.g., the Mannlicher—the magazine is necessary to the use of the piece. In others it can be used or not, as desired. But rapid firing is the feature of modern practice, and was rendered comparatively ineffective with the old powder by the clouds of smoke produced in a minute's firing.

As a typical modern military rifle, the new Austrian weapon, the Mannlicher, may be cited. The empty gun weighs 8.3 lbs. Its calibre is $\cdot 32$ inch. The cartridges are centre-firing. They are issued in sets of five, contained in a sheet-iron case, which is readily slipped into place below the breech of the barrel. In this case they lie horizontally one on top of another, and are inserted, and the gun is then to be fired as a magazine rifle. When the last of the five cartridges enters the breech, the empty case drops out, and is left on the ground as valueless. The soldier next inserts a new case, the operation being as quick and simple as loading a common breech-loader with a single cartridge. The powder used is smokeless, and the ball of lead is cased with German

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silver. The barrel of the rifle is surrounded with a steel jacket to protect the hand of the soldier from excessive heat. The initial velocity is 2,033 ft. ; maximum range, 9,185 ft ; maximum range for which the sights are adjusted, 6,725 ft. At 100 yards the ball pierces 32 inches of fir-wood and 36 inches of sand ; at 200 yards 17 inches of fir and 20 of sand ; at 1,800 yards it pierces 2 inches of fir. The soldier is supposed to carry 150 of the cartridges with him, and wagons containing a further supply of 100 cartridges per man are to accompany the troops in action. In the United States experiments led to an official report (1893) favoring the Krag-Jorgkensen rifle, instead of the Springfield, for the army. Some inspectors, however, reported (1895) several serious defects in the new gun.

Cannon were rifled as early as 1615. In 1661 the Prussians experimented with a gun rifled in 13 shallow bores. Thereafter many attempts were made to rifle cannon, with more or less success. In recent years inventors have produced many admirable guns—the great difficulty of the day being to decide which is most effectual. The first point was the metal; and here cast-iron was found useless, being incapable of resisting the explosion of the large charges necessary to force closely fitting projectiles through rifled barrels. Several plans were resorted to. Sir William Armstrong welds coils of wrought-iron round a mandrel into one homogeneous mass of extraordinary tenacity, which he again strengthens by similar rings round the breech. Whitworth forces rings of wrought-iron over the barrel by hydraulic pressure. The Woolwich system is to shrink coils of wrought-iron over an inner tube of mild steel toughened in oil; and it gives entire satisfaction. The French rifle brass guns, and use small charges; having also guns of wrought-iron. The Austrians have made a new bronze alloy (invention of Gen. Von Uchatius) which has proved extremely strong; the Belgians have tried Bessemer's steel. The system of rifling was the next important matter. Lancaster adhered to his oval bore; Sir William Armstrong produced a bore rifled in a great number of small sharp grooves (this gun was adopted by the British govt. 1859); Whitworth retained a hexagonal bore; and the French govt. adopted a bore with two, subsequently three, rather deep spiral grooves. After careful experiments, the Austrian, Spanish, Dutch, and Italian govts. have concurred in the French system. These several bores are shown below in section. In the Armstrong, rotation is communicated to the projectile by the latter being cased with lead, which the explosion forces into the grooves. The numerous fine grooves impart a very correct centring to the shot, and give extreme accuracy of range; but they render the gun a delicate weapon. In the Whitworth, the shot is constructed to pass freely through the spiral hexagonal bore, windage being prevented by a greased wad. Lan-

RIFLED ARMS.

caster's shot was elliptical, to correspond with the bore. The French projectiles have ribs or studs of projecting metal to correspond to the grooves.

The Armstrong gun has been superseded in the British service by the Woolwich gun, which has a modified form of the French rifling, but generally with a larger number of grooves (32 or 33), according to size of gun.

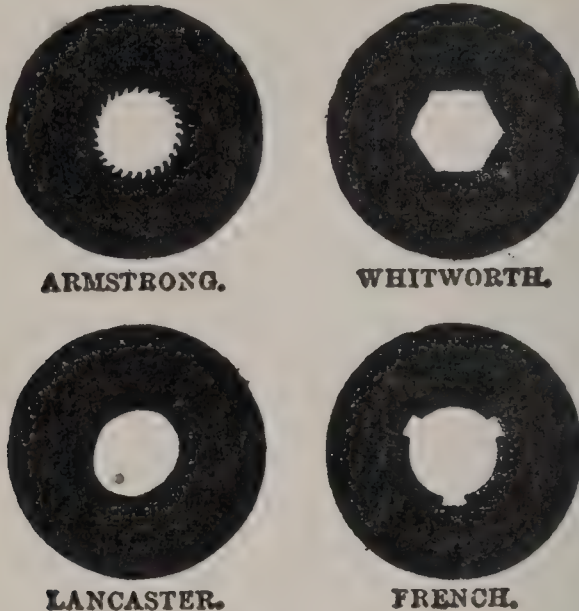


Fig. 4.

(The Ellipse of the bore in the Lancaster is exaggerated to show the principle.)

In the United States much attention has been given by the govt. since 1884 to the improvement of R. A., chiefly by reason of the determination to create a new and more effective navy. For a variety of reasons the principle has been officially accepted that the best means of protecting the large cities along the coasts is the provision of new types of battle-ships and of special harbor defense vessels; and as congress has ordered the construction of three great coast-line battle-ships, at a cost of \$4,000,000 each exclusive of armor and armament, and several protected cruisers and armored coast defense vessels, as a beginning, more attention has been given to providing improved R. A. for the navy than for land defenses. The new battle-ships will be armed each with four 13-in. 35-calibre breech-loading rifles; eight 8-in. rifles; four 6-in. rifles; twenty 6-lb. rapid-fire guns; six 1-lb. rapid fire; 2 Gatling guns; and 6 torpedo tubes or guns. The 4-in. and 5-in. rifles are classed as rapid-fire guns; and the navy dept. has decided that the 5-in. gun is the largest that can be adapted at present to the quick-firing feature. This gun, with 30 lbs. of powder, will give a 50-lb. projectile an initial velocity of 2,250 ft. per second, and a striking energy of 1,754 ft.-tons, capable of penetrating 9 in. of solid steel. The guns now in use on the new ships or being cast in govt. and private foundries for vessels building are of calibre 4-in., 5-in., 6-in., 8-in., 10-in., 12-in., and 13-in.; while the bureau of

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ordnance of the army is having 8-in., 10-in., 12-in., and 15-in. steel sea-coast guns made for the land defenses. A 16-in. gun has been projected and approved, to be mounted in pairs in turrets commanding the principal water approaches of ports of the first importance. The scheme calls for 44 such guns, of which 36 will be for defense of New York, Boston, and San Francisco. This gun will be $49\frac{1}{2}$ ft. long, weigh 125 tons, fire a projectile more than a ton in weight with a powder charge of 1,000 lbs., and a muzzle penetration in iron of 3 ft., and have a maximum range of 15 m. The govt. gun factory at Watervliet, recently provided with a \$750,000 plant for casting great guns, has a capacity of twelve 8-in., seven 10-in., and five 12-in. rifled pieces per annum, beside eight field pieces, steel breech-loading siege guns of 5-in., and 7-in. howitzers. An 8-in. rifled gun is 24 ft. long, weighs $14\frac{1}{4}$ tons, and fires a 280-lb. projectile with 105 lbs. of powder; and a 10-in. one is 28 ft. long, weighs $28\frac{1}{2}$ tons, and fires a 575-lb. projectile with 180 lbs. of powder. The new light field pieces are of steel, $3\frac{2}{10}$ -in. bore, 7 ft. long, fire $13\frac{1}{2}$ -lb. projectiles with $3\frac{3}{4}$ lbs. of powder, weigh 800 lbs., and have accurate range 3 m., maximum 4.—A 6-in. gun, manufactured under the old contract system by private firms, cost the govt. \$3,400; an 8-in. \$8,500; both exclusive of cost of forgings. Since the govt. has been manufacturing heavy guns, the cost of completed guns and of carriages has been greatly reduced, viz.: 6-in. (1888) \$2,649; (1890) \$1,298; 8-in. (1888) \$5,163; (1890) \$2,772; time in 10-hour days, 6-in. (1888) 115; (1890) 60; 8-in. (1888) 225; (1890) 120. The 10-in. guns made by the govt. cost (1888) \$6,334, time 240 days; (1890) \$3,500, time 164 days. The average cost of the first 10 gun carriages was \$4,423.10 for labor, \$2,133.21 material, total \$6,556.31; cost of fifth 10, \$1,708 for labor, \$1,116 material, total \$2,824.

In 1890 contracts were signed with the Hotchkiss Ordnance Co. for 94 Hotchkiss guns and ammunition for the navy. At that time 8 distinct systems of rapid-fire guns had been developed, of which the govt. was using three, the Hotchkiss, Driggs-Schroeder, and Maxim, (see MACHINE GUN). The last improvement in heavy ordnance is the Brown segmental tube wire-wound gun, which was tested with remarkable results at Fort Wadsworth, N. Y., 1891, Mar. 28. An inner tube made up of numerous steel segments is wound with steel wire at a tension of 150,000 lbs. to the sq. in. A cast-steel jacket incloses the wired tube, and the gun is then bored out to receive a lining tube, inserted to protect the core. A 5-in. gun will be $18\frac{1}{2}$ ft. long, weigh $3\frac{1}{2}$ tons, and fire a 60-lb. shot with 30 lbs. of powder.

See BREECH-LOADING GUNS: CANNON: CANNON FOUNDING: FIREARMS: GATLING GUN: GUNNERY: GUNPOWDER: KRUPP'S STEEL: MACHINE GUN: REVOLVER: PROJECTILES: RANGE: WINDAGE.

RIFT—RIGA.

RIFT, n. *řift* [from **RIVE**, which see]: a fissure or cleft; an opening made by splitting: V. to cleave; to split; to burst open. **RIFT'ING**, imp. **RIFT'ED**, pp.

RIG, v. *řig* [Norw. *rigga*, to bandage, to rig a vessel; *rigg*, rigging of a ship: AS. *wrihan*, to cover, to clothe]: to fit with tackling; to furnish with gear: to clothe; to dress: N. the peculiar manner of fitting the shrouds, stays, braces, etc., to their respective masts and yards in a ship. **RIG'GING**, imp.: N. all the cordage belonging to the masts, yards, or other parts of a ship (see below). **RIGGED**, pp. *řigd*. **RIG'GER**, n. *-ér*, one who rigs; a wheel with a flat or slightly curved rim, moved by a leather band. **TO RIG A SHIP**, to fit the shrouds, stays, braces, etc., to their proper masts and yards.

RIG, n. *řig* [Norw. *rugga* or *rigla*, to rock or waver—probably from the excited movements of animals under the sexual impulse: Dut. *wrikken*, to move to and fro: comp. Manx, *reagh*, wanton, sportive (see **RIDGEL**)] : an excited and irregular movement of any kind; a trick; in *OE.*, a wanton; a romping girl. **TO RIG ABOUT**, to be wanton; to romp. **RIG'GISH**, a. wanton. **TO RUN A RIG**, to act in an excited manner; to do something outrageous. **TO RIG THE MARKET**, *literally*, to play tricks with it—a term applied to a dishonest combination among a number of merchants to buy up so extensively any particular article or commodity as to be able to resell the same at greatly enhanced prices.

RIG, n. *řig* [AS. *hrycg*; Icel. *hryggr*; Dan. *ryg*, the back (see **RIDGE**)] : in *Scot.*, the back of an animal; anything formed like the back of an animal; a long breadth of cultivated land sloping down on each side; a ridge. **RIG AND FUR**, said of stockings which are ribbed.

RIGA, *řěgâ* : city, cap. of the Russian govt. of Livonia, and next to St. Petersburg the most important Baltic seaport. It is on the right bank of the Dwina, crossed here by a bridge of boats and a new railway bridge 10 m. from the mouth of the river at Dünaburgon on the Gulf of Riga, at which point a fortress defends the Dwina. Ships come up to Riga. R. has ample railway connections with most parts of Russia and Germany. It was till of late defended by walls and bastions: these are now removed; and the city proper is separated from its three suburbs by promenades on both sides of the encircling canal. A citadel stands n. of the city. The chief buildings are the cathedral, the church of St. Peter, the town-hall, and the ancient castle; also the modern bourse, theatre, asylums, hospitals, and schools. Of more than a dozen stone churches, 7 are Lutheran, 4 Russian, 1 Anglican; and there are 10 wooden ones besides. R. has numerous official, literary, educational, and beneficent institutions. Its manufactures are mainly of cotton, machines, tobacco, starch, soap, candles, leather; and its large exports are chiefly flax, hemp, grain, linseed, and wood. Half of the people are Germans; and of the remainder, half are Russians and half

RIGA—RIGESCENT.

are Lithuanians. Pop. with suburbs (1867) 102,590; (1880) 168,850; (1890) 180,278; (1900) 282,943.

R. was founded in the beginning of the 13th c. by Albert Buckshoevden, Bp. of Livonia, and soon became a first-rate commercial town, and member of the Hanseatic League. The Teutonic Knights possessed it in the 16th c. In 1621, R. was taken by Gustavus Adolphus, and held under Swedish dominion till 1710, but was finally annexed to Russia 1721.

RIGA, GULF OF: inlet in the n.e. of the Baltic Sea, washing the shores of the three Baltic provinces, Courland, Livonia, and Esthonia. It is more than 100 m. long from n. to s., and about 70 m. wide. The islands of Oesel, Dagö, Mohn, and Worms stand in the entrance to it, and narrow the mouth of the gulf to about 20 m. The chief river flowing into the gulf is the Dwina. Sandbanks render navigation in some parts dangerous.

RIGA BALSAM, n. *rī'ga* or *rē'-bawl'sam*: balsam obtained from *Styrax benzoin*.

RIGADOON, n. *rīg-a-dôn'* [F. *rigadon*, *rigaudon*—a dance said to be so called from *Rigaud*, the surname of its inventor]: a lively dance performed by one couple.

RIG'DON, SIDNEY: see **MORMONS**.

RIGEL, n. *rījēl* [Ar. *rijil*, a person's foot]: in *astron.*, a star of the first magnitude at the left foot of Orion; called also β Orionis. It is of bluish color.

RIGESCENT, a. *rī-jēs'sēnt* [L. *riges'cens* or *rigescen'tem*, growing stiff or numb; *riges'co*, I grow stiff—from *rigērē*, to be stiff]: in bot., having a rigid or stiff consistence.

RIGGING.

RIG'GING, in a Ship: combination of numerous ropes to afford stability to the masts, and to lower and hoist the sails. Notwithstanding the complication which the

cordage of a rigged ship presents at first sight to the eye, the arrangement is remarkably simple. In all substantial points, the rig of each mast is the same; to understand one is, consequently, to understand all. In the accompanying diagrams, the same notation is observed throughout, spars being shown by capital letters; sails, by italic letters; *standing* rigging, by Roman numerals; and *running* rigging, by Arabic numerals. To avoid a confusing number of symbols and needless repetition, the corresponding ropes, etc., on each mast bear the same numbers, and in the key, the name of such rope *per se* is only given. To find the full title of a rope, it is necessary to prefix (unless it pertain to the bow-sprit or gaff) the name of the mast (mizzen, main, or fore) to which it belongs. For example, the spars marked D are, counting from the left, i.e., the stern, called respectively mizzen-royal-mast, main-royal-mast, and fore-royal-mast; the standing-ropes marked IV., are the mizzen-stay, main-stay, and fore-

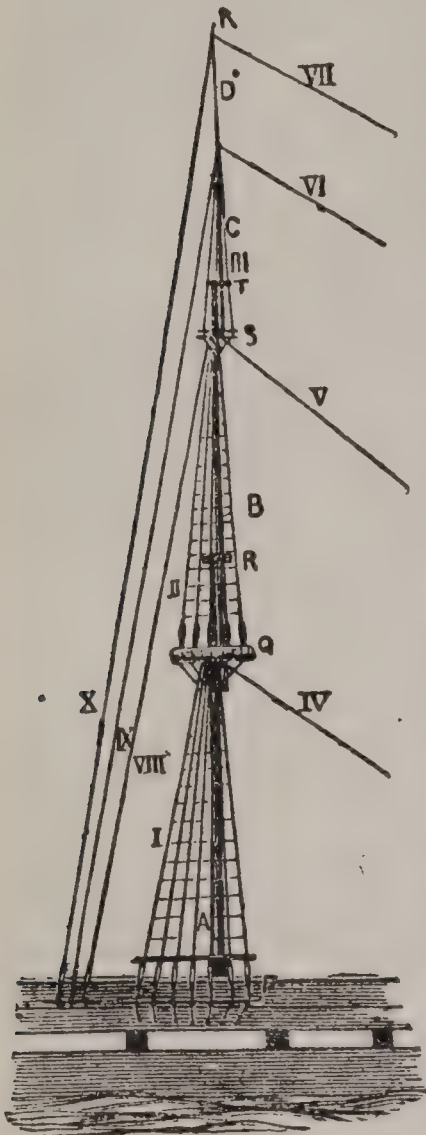


Fig. 1.

stay, and the running-ropes bearing the figure 5, are mizzen-braces, main-braces, and fore-braces.

Rigging is either *Standing* or *Running*. The former is employed in maintaining, in fixed position, the masts and bow-sprit; the latter runs freely through numerous blocks, and its functions are to raise and lower the upper masts and the yards, to trim the sails, to hoist the signals and other flags, and occasionally to furl the sails.

Each mast has the following standing rigging: at each side *shrouds* (I., II., III.), consisting of several very thick (usually plaited) ropes; in front, the *stay* (IV., V., VI., VII.); and behind, the *backstays* (VIII., IX., X.), coming down to the ship's sides behind the shrouds. Across the lower-mast and topmast shrouds, thin ropes, called *ratlings*, are hitched horizontally, and form convenient ladders for the men in going aloft. The standing rigging of the

RIGGING.

lower mast reaches the chains on the ship's sides; while the shrouds of the topmast and topgallantmast are worked into the top, their stays to the tops of the masts nearer the bow in each case (the bowsprit serving as an anterior mast for the fore-rigging); all the backstays, however, are brought down to the ship's sides. In steamers, the mainstays require modification to avoid the funnel; they are often adjusted on a plan similar to that of the backstays. The standing rigging of the bowsprit consists of the bobstays (XIV.), generally of chain; the martingale stays (XI., XII.), and martingale backstays (XIII.), which all exert an adverse pressure to that of the stays from the foremast, topmast, etc.

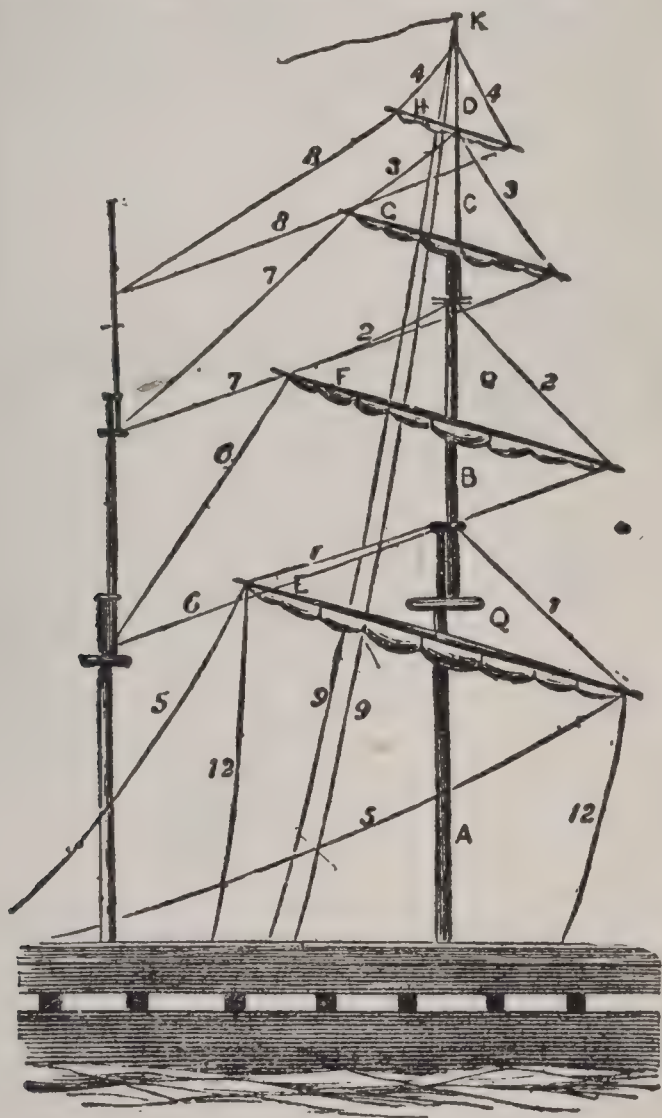


Fig. 2.

The *running* rigging is of four classes: 1. Lifts for the upper masts and the jib-boom; these are not shown in the diagrams, from the fact that they run parallel, and contiguous to the masts, topmasts, and bowsprit.

2. The lifts for the yards and sails. Each yard has two lifts, one proceeding from a point near either extremity, and passing through a pulley at the head of that section of the mast to which the sail or yard belongs. They are worked either on the deck or in the top. The

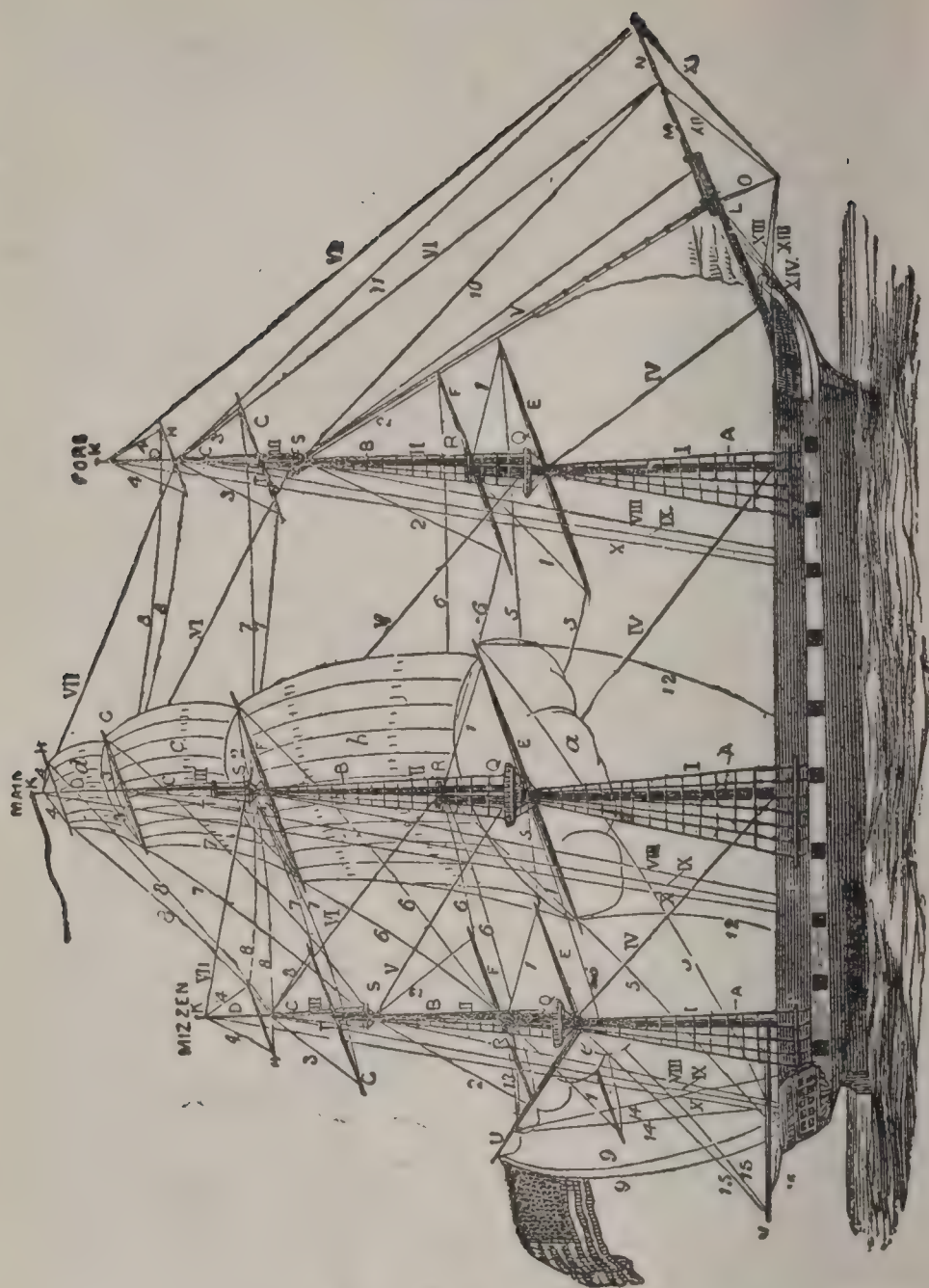


Fig. 3.

Spars, etc.—A, Mast; B, Topmast; C, Topgallantmast; D, Royal-mast; E, Yard; F, Topsail-yard; G, Topgallantsail-yard; H, Royal-yard; K, Truck; L, Bowsprit; M, Jib-boom; N, Flying Jib-boom; O, Martingale; P, Chains; Q, Top; R, Cap; S, Crosstrees; T, Topmast Cap; U, Gaff; V, Boom, or Spanker-boom.

Sails.—a, Mainsail; b, Topsail; c, Topgallantsail; d, Royal; e, Sparker.

Standing Rigging.—i. Shrouds; ii. Topmast Shrouds, crossed by Ratlings; iii. Topgallant Shrouds; iv. Stay; v. Topmast Stay; vi. Topgallantmast Stay; vii. Royal Stay; viii. Topmast Backstay; ix. Topgallantmast Backstay; x. Loyal Backstay; xi. Flying Jib-boom Martingale Stays; xii. Jib-boom Martingale Stays; xiii. Martingale Backstays; xiv. Bobstays.

Running Rigging.—1, Lifts; 2, Topsail Lifts; 3, Topgallantsail Lifts; 4, Royal Lifts; 5, Braces; 6, Topsail Braces; 7, Topgallant Braces; 8, Royal Braces; 9, Signal Halyards; 10, Jib-stay; 11, Flying Jib-stay; 12, Sheet; 13, Peak Halyards; 14, Vangs; 15, Topping Lifts; 16, Sparker Sheet.

yard-lifts are shown by the numbers 1, 2, 3, 4. The gaff and boom have separate lifts working into the mizzen-top (13, 15). Each jib-sail has a lift (not shown), which acts parallel and close to iv., v., 10, or 11. If the ship carry stay-sails, there will be lifts parallel to the main and mizzen topmast stays and higher stays.

3. The ropes for adjusting the sails when spread. These comprise, first, the sheets for hauling down the lower corners of each sail—specimens are shown at 12; secondly, the braces for turning the yards about, to trim the sails to the wind. Each yard has two braces, one from either end passing to an adjoining mast, except the main braces, which are brought to the ship's side near the stern. The braces are shown as Nos. 5, 6, 7, 8. The vang and spanker sheet (14, 16) perform similar offices for the spanker. There are minor ropes in connection with the sails, for assisting in furling, reefing, spreading, etc.; but their insertion would render the diagram too complicated.

4. Ropes in connection with the flags. Each mast has at its head a *truck*, containing two or more small pulleys. Over each of these, a thin halyard is passed, and brought down double to the deck. On these, any required flag is rapidly bent and hoisted with great ease. There are two pair of similar halyards to the gaff-peak; and when the ship is to be decorated on any festive occasion, similar halyards are affixed to the end of each yard-arm.

In different classes of ships, slight modifications occur in the rigging, to suit particular circumstances; but the main principles of rigging are as detailed above for all sizes of decked vessels. See SAILS.

RIGGLE, v. *řĭg'gl*: spelling of WRIGGLE, (q.v.).

RIGGS, *řĭgz*, ELIAS, D.D., LL.D.: Christian missionary to the orient: b. New Providence, N. J., 1810, Nov. 19; graduated at Amherst 1829, and Andover 1832. He was a missionary of the Amer. Board at Athens and Argos, Greece, 1832–38; at Smyrna 1838–53; and since at Constantinople. On visiting home, he taught Hebrew at Union Theol. Seminary 1857–8, declined a professorship, and returned to Turkey. To him is due a translation of the Bible into Turkish, in both the Arabic and Armenian alphabet (1878); and he has published *A Manual of the Chaldee Language* (1832); *The Young Forester*, a memoir of the Swede missionary Fjelstedt (1840); translation of the Scriptures into modern Armenian (1853); *Grammatical Notes on the Bulgarian Language* (1844); *Grammar of Modern Armenian Language, with Vocabulary* (1847); *Grammar of the Turkish Language, as Written in the Armenian Character* (1871); translation of the Scriptures into the Bulgarian language (1871); *A Harmony of the Gospels in the Bulgarian* (1880); *A Bible Dict. in the Bulgarian* (1884); suggested emendations of the revised version of the Bible, and many tracts and hymns in the languages mentioned. He was still living 1890.

RIGHI—RIGHT.

RIGHI, *rě'ghē*: mountain of Switzerland, canton of Schwyz, between Lakes Lucerne, Zug, and Lowerz: it is isolated, and commands extensive views of some of the finest Swiss scenery. It is easily accessible; six mule-paths and the R. railway, opened 1871, lead to the summit, which, though it forms an admirable natural observatory in favorable weather, is only 5,905 feet above sea-level. Verdant pastures clothe the entire summit, and the slopes are belted with forests. Crowds of tourists, men and women, ascend the R. every season, for the fine views which it commands. There is a large hotel at the top, where tourists pass the night, in order to see the sun rise. The native spelling is *Rigi*.

RIGHT, a. *rīt* [AS. *riht*; Goth. *raihts*; Ger. *recht*; L. *rectus*, straight, stretched out; *regĕrĕ*, to rule: Gr. *orĕgō*, I stretch]: straight; not crooked; direct; true; not wrong; according to the standard of truth or of moral rectitude, or to the will of God; not erroneous or wrong; fit; proper; well performed; applied to one of the hands which it is most convenient or *right* to make use of, or which is naturally used in preference to the other, from some inherent physical power in itself (see **LEFT**); on the right hand, as a leg or a part; applied to the side or bank of a river on the right hand when looking toward its mouth: denoting an angle of 90°: denoting the side of cloth designed to appear externally: N. not the wrong; the side which is not the *left*—i.e., the right side is toward the e. when one faces the n.: perfect standard of truth and justice; justice; freedom from error; legal title (see **RIGHT**, in Law); just claim; that which justly belongs to one; privilege: V. to relieve from wrong; to do justice to; to restore to its upright position, as a ship: AD. according to the standard of truth and justice; in a right manner; according to fact and truth; directly; in a direct line; very; thoroughly, as *right* valiant—also in this sense, *right* honorable; in *OE.*, just; immediately; at the instant: INT. an expression of approval. **RIGHT'ING**, imp. **RIGHT'ED**, pp. **RIGHT'FUL**, a. *-fūl*, consonant to justice; having a legal or just claim; equitable. **RIGHT'FULLY**, ad. *-lī*. **RIGHT'FULNESS**, n. *-nēs*, the state of being rightful; accordance with the rules of right. **RIGHT'LY**, ad. *-lī*, according to justice; properly; fitly; honestly; uprightly. **RIGHT'NESS**, n. *-nēs*, the state of being right; conformity to truth. **RIGHT AND LEFT**, in all directions; on all sides. **RIGHT ANGLE**, in *geom.*, an angle formed by one straight line standing on another when the adjacent angles are equal; an angle of 90°. **RIGHT-ANGLED**, a. *-āng'gld*, in *geom.*, containing one or more right angles. **RIGHT ASCENSION** and **DECLINATION**, the equinoctial co-ordinates for defining the position of points of the celestial concave, and indicating their positions relatively to each other, the former being measured on the equinoctial from the first point of Aries eastward, the latter on the secondaries of the equinoctial to the

RIGHT.

north and south poles of the heavens from 0° to 90° . **RIGHT AWAY** or **OFF**, at once; without delay. **RIGHT-HANDED**, a. using the right hand more easily than the left. **TO PUT ONE'S RIGHT FOOT FOREMOST** [the Romans held it a good omen to enter a dwelling by crossing the threshold with the right foot first]: to do one's very best in order to be successful. **RIGHT-HANDED SCREW**, a screw the threads of which wind spirally from left to right. **RIGHT-HEARTED**, a. good-hearted. **RIGHT HONORABLE**, title used in addressing all noblemen below the rank of marquis, their wives, their eldest sons where there is a second title, and the daughters of those above the rank of viscount, all privy councilors, the lord mayors of London and Dublin, the provosts of Edinburgh and Glasgow, and certain others. **RIGHT LINE**, n. in *geom.*, a straight line. **RIGHT-MINDED**, a. -*mīnd'ēd*, well-disposed. **RIGHT** or **LEFT**, **EXTREME RIGHT**, **EXTREME LEFT**, terms derived from the usage of the French chamber of deputies or legislative assembly, where the party on the side of the administration occupy the *right* side of the hall, and the opposition the *left* side (see **FRANCE—Political Parties**). **RIGHT SIDE**, the side to be shown; *familiarly*, good graces. **RIGHT SPHERE**, that position of the sphere, being the appearance to a spectator on the equator, in which the circles apparently described by the heavenly bodies are at right angles to the horizon. **RIGHT-WHALE**, n. the Greenland whale: see **WHALE**. **AT RIGHT ANGLES**, applied to a line which crosses or stands on another perpendicularly. **BILL OF RIGHTS** (see **RIGHTS, DECLARATION AND BILL OF**). **BY RIGHTS**, properly; correctly. **ON THE RIGHT**, on the same side with the right hand. **IN ONE'S OWN RIGHT**, by absolute right. **TO RIGHT A VESSEL**, to restore her to an upright position. **TO SET** or **PUT TO RIGHTS**, to arrange; to put into good order.—**SYN.** of 'right, a.': direct; straight; correct; true; perpendicular; just; equitable; suitable; becoming; lawful; upright; rightful; proper; fit; honest.

RIGHT, in Law: that kind of interest in or connection with a subject-matter which serves as foundation for an action or suit, or other protection of a court of law or equity; hence it means an interest that can be enforced, for if it is such as a court of law or equity cannot take notice of, it may be called a natural or moral, but not a legal right. Strictly speaking, right means merely a relation between external nature and some person, therefore there is no such thing as abstract rights, for a right is intelligible only when predicated of some person who can exercise or enforce it. There is an old practical division of all rights into rights of the person and rights of things. In the former class are included such divisions as rights of personal security and liberty; rights connected with marriage, infancy, etc.; while in the latter class are included the general rights arising out of the possession of real and personal prop-

RIGHTEOUS—RIGHTS.

erty. There are various subjects which do not fall under either division exclusively; indeed, none of the usual divisions of rights can be said to be more than vaguely descriptive of their subjects. It might naturally be expected that the correlative legal expression for rights should be wrongs, but this is not the case, the word wrong being used technically to mean only that class of infringements of one's rights which are connected with the person or the personal use of property. Thus, the refusing or withholding payment of a debt is not correctly called a legal wrong; but an assault or injury to one's person, or to one's property, irrespective of any contract, is properly called a wrong or a tort. The word right is used also more or less technically, in a narrower sense. An action, called a writ of right, had for its object to establish the title to real property; but it was abolished, the same object being secured by the order of ejectment. A *petition of right* is a proceeding resembling an action by which a subject vindicates his rights against the crown, or a citizen against the govt., and recovers debts and claims. A *right of way*, is a right of a private owner or occupier to a way over the land of an adjoining proprietor, as incidental to his possession of a house, or premises, or land. *Right of action*, means simply a right to commence an action in one of the courts of law to recover damages or property. *Right of common*, means a right of one, not the owner or occupier of waste land, to send cattle to graze on it, or to cut turf, or exercise some partial right of property over it. *Right of entry*, is a right to possess and use land or premises, etc.

RIGHTEOUS, a. *rīt'yūs* or *rī'chūs* [from Eng. *right*: OE. *rightwys*; AS. *rihtwis*, righteous, pious—from AS. *riht*, right, and *wis*, wise]: *literally*, wise as to what is right; agreeing with right; living, acting, or done according to the will of God; honest; just; equitable. **RIGHT'EOUSLY**, ad. *-lī*. **RIGHT'EOUSNESS**, n. *-nēs* [AS. *rihtwisnes*]: what is right; justice; uprightness; conformity of heart and life to the divine law; integrity; the perfection of God's nature.—**SYN.** of 'righteous': godly; upright; holy; equitable; rightful; just; uncorrupt; virtuous; honest; faithful;—of 'rightful': just; lawful; equitable; proper; honest.

RIGHTS, DECLARATION AND BILL OF: solemn instrument set forth by the convention which called the Prince and Princess of Orange to the throne of England, (1688), known as the *Declaration of Rights*, in which were stated those fundamental principles of the constitution which were to be imposed on William and Mary on their acceptance of the crown. This declaration, drawn up by a committee of the commons, and assented to by the lords, began by declaring that King James II. had committed certain acts contrary to the laws of the realm. The king, by whose authority these unlawful acts had been done, had abdicated the throne; and the Prince of Orange having invited the estates of the realm to meet

RIGHTS.

and deliberate on the security of religion, law, and freedom, the lords and commons had resolved to declare and assert the ancient rights and liberties of England. It was therefore declared, that the power of suspending and of dispensing with laws by regal authority is illegal; that the commission for creating the late Court of Commissioners for Ecclesiastical Causes, and all commissions and courts of the like nature, are illegal; that the levying of money for the use of the crown by prerogative, without grant of parliament, is illegal; that it is the right of the subjects to petition the king, and all prosecutions for such petitioning are illegal; that the raising or keeping of a standing army in time of peace, except with consent of parliament, is illegal; that Protestant subjects may have arms for their defense; that the election of members of parliament should be free; that freedom of speech in parliament should not be questioned in any place out of parliament; that excessive bail ought not to be required, or excessive fines imposed, or cruel or unusual punishments inflicted; that jurors should be duly impanelled, and that jurors in trials for high treason should be freeholders; that grants and promises of fines and forfeitures before conviction are illegal; and that for redress of all grievances, and the amendment, strengthening, and preserving of the laws, parliaments ought to be held frequently. All these things the lords and commons claimed as their undoubted rights and liberties; and having done so, they resolved that William and Mary should be king and queen of England for their joint and separate lives, the administration being during their joint lives in William alone; and that on their decease the crown should descend to the issue of the queen, then to that of Anne and her posterity, and, failing them, to the issue of William.

This Declaration of Rights was presented to the Prince and Princess of Orange at Whitehall, and accepted by them with the crown. Being originally a revolutionary instrument, drawn up in an irregular assembly, it was considered necessary that it should be turned into law. The Declaration of Rights was therefore brought forward in the parliament, into which the convention had been turned, as a Bill of Rights, and, after various discussions, passed both houses 1689, and obtained the royal assent—a clause, however, being added, which originated in the house of lords, to the effect that the kings and queens of England should be obliged, on coming to the throne, in full parliament or at the coronation, to repeat and subscribe the declaration against transubstantiation; and that a king or queen who should marry a papist would be incapable of reigning in England, and his subjects would be absolved from their allegiance.

RIGHTS OF MAN—RIGID.

RIGHTS OF MAN: famous statement of rights, drawn up principally by Dumont, author of *Souvenirs de Mirabeau*, and solemnly adopted by the French National Assembly, 1789, Aug. 18. It declares that all mankind are originally equal; that the ends of the social union are liberty, property, security, and resistance to oppression; that sovereignty resides in the nation, and that all power emanates from it; that freedom consists in doing everything which does not injure another; that law is the expression of the general will; that public burdens should be borne by all members of the state in proportion to their fortunes; that the elective franchise should be extended to all; and that the exercise of natural rights has no other limit than their interference with the rights of others. Mirabeau endeavored in vain to induce the assembly to postpone publishing any declaration of rights until after the formation of the constitution; but the deputies, feeling that a contrary course might imperil their popularity, issued the declaration—a proceeding which Dumont himself afterward compared to placing a powder-magazine under a building, which the first spark of fire would blow into the air. Louis XVI., under the pressure of the events of Oct. 5, after first refusing, was induced to yield assent to it. The dogma of the equality of mankind, on which the declaration rests, had before been set forth in the American Declaration of Independence of 1776. Thinkers are now much less inclined than in the age of Rousseau to build social theories on such abstract, *a priori* assumptions; and the truth of this doctrine of original equality is directly impugned. Dumont himself asks: ‘Are all men equal? Where is the equality? Is it in virtue, talents, fortune, industry, situation? Are they free by nature? So far from it, they are born in a state of complete dependence on others, from which they are long of being emancipated.’ To this, the rejoinder, so far at least as concerns the principle stated in the Amer. Declaration, is that the equality claimed is no abstraction but a fundamental element in all rightful and stable government—that all men are to be counted originally equal *before the law*.

The principles laid down in the *Rights of Man* were attacked by Edmund Burke in his *Reflections on the French Revolution*, who represented the declaration as a digest of anarchy. It was in reply to Burke’s *Reflections* that Thomas Paine published in London his *Rights of Man*, an apology for, and commentary on, the principles of the French constitution, for which he was prosecuted for libel on an information by the atty.gen. and found guilty.

RIGID, *riĵid* [L. *rigidus*, stiff, inflexible—from *rigērē*, to be stiff: It. *rigido*: F. *rigide*]: not pliant or easily bent; stiff; severely just; strict; unyielding; inflexible; rigorous; in *OE.*, sharp; cruel. **RIG’IDLY**, ad. *-lī*, severely; inflexibly. **RIG’IDNESS**, n. *-nēs*, or **RIGIDITY**, n. *ri ĵid’i-tī*, inflexibility; stiffness; quality of resisting

RIGID DYNAMICS—RIGMAROLE.

change of form; want of ease. **RIGIDULOUS**, a. *rĭ-jĭd'ū-lūs*, in *bot.*, rather stiff.—**SYN.** of 'rigid': inflexible; unyielding; rigorous; unmitigated; unremitted; stern; austere; severe; exact; stiff; unpliant; strict.

RIG'ID DYNAM'ICS: that portion of theoretical Dynamics (q.v.) which, based on the theory of the free and constrained motion of *points*, applies the principles thence deduced to a *system* of points rigidly connected, so as to bear throughout the whole continuance of their motion the same invariable position with relation to each other; in other words, as no body in nature can be considered as a point, but is truly a system of points, rigid dynamics has for its aim to apply the abstract theory of dynamics to the cases actually occurring in nature. For a long time, problems of this sort were not resolved by any general and adequate method, but each class was worked out according to a method specially applicable to its particular circumstances. The great general principle discovered by the French geometer, commonly known as *D'Alembert's principle*, which applies equally to all such problems, and removes the necessity for specially investigating each particular case, was an inestimable boon to mechanical science. It is thus stated in his *Traité de Dynamique*: 'In whatever manner a number of bodies change their motions, if we suppose that the motion which each body would have in the following moment, if it were perfectly free, is decomposed into two others, one of which is the motion which it *really* takes in consequence of their mutual actions, then the other component will be such, that if each body were impressed by a force which would produce it alone, the whole system would be in equilibrium.' In this way every dynamical problem can be compelled to furnish an equation of equilibrium, and so be changed into a problem of *Statics* (q.v.); and thus the solution of a difficult and complex problem is effected by means of the resolution of a much easier one. D'Alembert applied his principle to various problems on the motions and actions of fluids, the precession of the equinoxes, etc.; and subsequently, in a modified form, the same general property was made the basis of a complete system of dynamics, by La Grange, in his *Mécanique Analytique*.

RIGLET: see **REGLET**.

RIGMAROLE, n. *rĭg'ma-rōl* [a corruption of **RAGMAN-ROLL**, formerly a popular game consisting in drawing characters from a roll by means of hanging strings, the amusement consisting in the application or misapplication of the characters to the persons who drew them: OE. *ragman*, a name applied to the devil: see **RAGMAN'S ROLL**]: a succession of confused or nonsensical sentences or statements; a repetition of idle or long foolish stories: **ADJ.** pert. to or consisting of rigmarole; nonsensical.

RIGOL—RIGOR MORTIS.

RIGOL, n. *rī'gōl* [from OE. *ringle*, a dim. of Eng. *ring*: Ger. *ringel*, a ring, a circle]: in OE., a circle; a diadem.

RIGOR, n. *rī'gōr* or *rīg'ér* [L. *rigor*, stiffness, rigidity—from *rigērē*, to be stiff: It. *rigore*: F. *rigueur*]: in med., a sudden coldness accompanied by shivering, symptomatic of the beginning of a disease, especially of a fever.

RIGOR MORTIS, *mōr'tīs* [L. stiffness of death]: the stiffening of the body caused by the contraction of the muscles after death.

RIGOR, n. *rīg'ér* [F. *rigueur*, rigor—from L. *rigōrem*, stiffness, rigidity (see RIGOR 1)]: stiffness or severity in opinion, temper, or manners; strictness; sternness; quality of being strict or exact; quality of being severe or very cold, as the weather; unabated exactness; severity of life; in OE., rage; cruelty; fury; hardness. **RIGOROUS**, a. *rīg'ér-ūs*, allowing no abatement or relaxation; scrupulously exact or accurate; severe; harsh; very cold, as a winter. **RIG'OROUSLY**, ad. *-lī*, severely; without tenderness or mitigation; exactly; nicely. **RIG'OROUSNESS**, n. *-nēs*, the state of being rigorous. **RIGORIST**, n. *rīg'ér-īst*, one very severe and exact in matters of religion; a Jansenist.—**SYN.** of 'rigor': rigidity; inflexibility; severity; austerity; sternness; cold; stiffness; harshness; strictness; exactness;—of 'rigorous': rigid; inflexible; unyielding; severe; stiff; austere; stern; harsh; strict; exact.

RIG'OR MORTIS [L. stiffness of death]: peculiar temporary rigidity of the muscles that occurs shortly after death. It begins immediately after all indications of irritability (see MUSCLE) have ceased, but before the commencement of putrefaction. In the human subject it usually shows itself about seven hours after death, though in some cases 20, or even 30, hours may elapse before it appears. This condition of rigidity usually lasts about 30 hours; but it may pass off in ten hours or less, or may be prolonged to four or six days. The muscles of the neck and lower jaw are first affected, then those of the trunk, then those of the upper extremities, and lastly those of the lower extremities. In its departure, which is immediately followed by decomposition, the same order is followed.

This subject has been admirably discussed by Dr. Brown-Sequard in the 'Croonian Lecture' for 1861 (see *Proceedings of the Royal Soc.* for that year). In this lecture he examines successively the relations existing between muscular irritability, *post-mortem* rigidity, and putrefaction, in a variety of cases. The following are his chief conclusions: 1. Paralyzed muscles are endowed with more irritability than healthy muscles; cadaveric rigidity sets in late, and lasts long; and putrefaction appears late, and progresses slowly. 2. Experiments made on numerous animals show that when muscular irritability is increased by diminution of temperature, the increase has the same effect on rigidity and putrefaction as when caused by paralysis. As a general rule, when

RIGVEDA—RILE.

there was a difference of 14° to 18° F. in the temperature of two animals of the same age and species, irritability and rigidity lasted twice or three times longer in the cooler animal than in the other, and putrefaction in the former was much less rapid. 3. It was maintained by John Hunter that cadaveric rigidity does not take place after death by lightning; but it is now known that this view is not generally true. When lightning destroys life by producing such violent convulsion of every muscle in the body that muscular irritability at once ceases, the ensuing rigidity may be of such short duration as to escape notice; but if lightning causes death by fright, hemorrhage, or concussion of the brain, cadaveric rigidity will appear as usual. 4. In animals that have been over-driven, hunted to death, etc., rigidity comes on very quickly, lasts a very short time, and is rapidly succeeded by putrefaction; and various facts quoted by Brown-Sequard show that over-exertion acts similarly in man. 5. The nutrition of the muscles exerts a modifying influence on rigidity and putrefaction. In cases of death from decapitation, strangulation, sudden hemorrhage from a wounded artery, etc., cadaveric rigidity does not begin till 16 or 18 hours after death, and lasts six to eight days; while in a case of death from exhaustion, after a prolonged typhoid fever, rigidity became evident within three minutes after the last breathing, while the heart was still beating; disappeared in a quarter of an hour, and was at once succeeded by signs of putrefaction before the man had been dead an hour. 6. When death follows violent and prolonged convulsions (as in cases of tetanus, hydrophobia, etc.), cadaveric rigidity sets in soon (usually within an hour after death), and ceases before the end of the tenth hour; and when the convulsions were caused by strychnine, similar results were observed. From these facts this accomplished physiologist deduces the general law, that 'the greater the degree of muscular irritability at the time of death, the later the cadaveric rigidity sets in: and the longer it lasts, the later also putrefaction appears, and the slower it progresses.'

The exact cause of this rigidity is not accurately known. The old view that it depended on the coagulation of the blood is no longer tenable. It most probably results from the spontaneous coagulation of a fibrinous material contained in the muscular juice.

RIGVEDA, *rīg-vē'da* : the first and principal of the four Vedas : see VEDA.

RILE, v. *rīl* [see ROIL 1, which is the same word] : to stir up and make muddy, as water; to put out of temper.

RIL'ING, imp. RILED, pp. *rīld*.

RILEY—RILIEVO.

RILEY, *rī'ŭ*, **BENNETT**: soldier: 1787, Nov. 27—1856 June 9; b. Alexandria, Va. He served in the war of 1812, in the Indian disturbances at various points, won great distinction in the Mexican war, and was brevetted brig.gen. and maj.gen.; was afterward in command on the Pacific coast, and was gov. of the territory of Cal. till it became a state. By various promotions he reached the rank of col. He died at Buffalo.

RILEY, *rī'ŭ*, **CHARLES VALENTINE**, PH.D., entomologist: b. London, England, 1843, Sep. 18. He was sent to a college in Dieppe, France, 1854; entered the Univ. of Bonn, Germany, 1857; came to the United States when 17 years of age; and did editorial work on the *Prairie Farmer*, Chicago, interrupted by military service from 1864 to the end of the war. He was state entomologist of Mo. 1868-77, publishing 9 valuable annual reports; and entomologist to the U. S. dept. of agriculture (organizing an entom. div. 1881) 1878-1894. Meanwhile he was a member of the Rocky Mt. locust commission, writing much of the reports. To the National Museum he gave 115,000 insect specimens. His investigations of farm, vineyard, and plantation pests are well known. From the French govt. and the Edinburgh Forestry exhibition, he received gold medals, and was member of many learned societies: and pres. of some. He published *The American Entomologist*, besides hundreds of papers; *Potato Pests* (1876); *The Locust Plague* (1877), and continued to issue reports and bulletins of the U. S. agric. dept., of great value. He d. 1895, Sept. 14.

RILEY, FORT, *rī'ŭfōrt*: U. S. milit. reservation, suburb of Junction City, Kan., near the geographical centre of the United States, named after Gen. Bennett Riley, U.S.A. It comprises 20,000 acres, was selected for milit. purposes 1852, occupied 1855, and made the location of a permanent school of instruction for drill and practice for the cav. and light artil. service for the army of the United States 1887. When all the buildings are completed (estimated cost \$1,500,000), it will be the largest milit. post on the continent, and its maintenance in all details will aggregate more than \$1,000,000 per annum.

RILEY, JAMES WHITCOMB: poet: born Greenfield, Ind., 1853. He attended school but a short time; became a sign-painter; and joined a strolling theatrical troupe for which he revised, and sometimes wrote, plays and songs. After gaining reputation by his contributions of dialect poems to local papers, he became connected with the Indianapolis *Journal*. He has written for various periodicals, and recited his poems at literary entertainments in many cities and towns. Among his published works are *The Old Swimmin'-Hole*, and *'Leven More Poems*, by Benj. F. Johnson, of Boone (1883); *The Boss Girl, and Other Sketches* (1886); *Afterwhiles* (1888); and *Rhymes of Childhood* (1891).

RILIEVO, n. *rī-lē'vō* [It]: the proper spelling of **RELIEF**, a term in the fine arts: see under **RELIEF**.

RILL—RIME.

RILL, n. *rĭl* [Low Ger. *rille*, a little stream: Dut. *riilen*, to shiver: Icel. *rylla*, to tumble about]: a very small brook; a streamlet: V. to run in very small streams. **RILL'ING**, imp. **RILLED**, pp. *rĭld*.

RIM, n. *rĭm* [AS. *rima*, margin, edge: Dan. *bryn*, the surface of the sea, the brow or rim of the eye: W. *rhim*, the edge or rim: comp. Gael. *riomh*, a wheel]: the edge or margin which surrounds a thing, as of a bowl; the outer circle of a wheel; the border; the lower part of the belly: V. to put a rim or hoop to. **RIM'ING**, imp.: N. the act of putting around a rim or border. **RIMMED**, pp. *rĭmd*.

RIM, n. *rĭm* [see RIM 1: comp. Gael. *reamhar*, fat]: in *OE.*, the peritoneum; a thin fatty membrane which lines the interior of the abdomen, and envelops the internal viscera.

RIMA, n. *rĭ'ma* [L.]: a cleft, as the rima of the glottis; in *bot.*, the cleft-like ostiolum of certain fungals.

RIMA-SZOMBATH, *rĕ'mâ-sŏm'bât*: market-town of Hungary, on the river Rima, 23 m. n.e. of Pesth. Articles in wood are largely manufactured, and there is trade in linen and bullock's hides. Pop. (1880) 4,500.

RIMBLE-RAMBLE, a. *rĭm'bl-răm'bl* [imitative word]: vague and humdrum; applied to a rambling and unmeaning discourse.

RIME, n. *rĭm* [AS. *hrim*; Dut. *rijm*; Sw. *rim*, hoar-frost: Icel. *hrim*, soot, hoar-frost]: hoar-frost; congealed dew or vapor. **RIMY**, a. *rĭm'ĩ*, abounding with rime; frosty.

RIME, n. *rĭm* [L. *rima*, a crack or cleft]: chink; fissure; a rent or long aperture.

RIME.

RIME, or **RHIME**, or **RHYME**, *n.* *rīm* [AS. *rim*; Ir. *rimh*, number, rime: It. *rima*; F. *rime*; Ger. *reim*, rime]: correspondence of sound in the terminations of words at the end of successive or alternate lines of certain kinds of poetry; a word or sound to answer to another; poetry: V. to put into rime; to make verses or lines terminate in words or syllables similar in sound. **RI'MING**, *imp.* **RIMED**, *pp.* *rīmd*: **ADJ.** put into rime. **RIM'ER**, *n.* *-ér*, or **RIMESTER**, *n.* *rīm'stér*, a versifier; a poor poet, in contempt. **RIME'LESS**, *a.* *-lēs*, without rime. **WITHOUT RIME OR REASON**, *literally*, without number or sense; *proverbially*, without sense or motive; absurd. *Note.*—The proper spelling, **RIME**, has been rarely used: it is now being adopted. The spelling *rhyme* has obtained currency from a supposed connection with *rhythm*—from L. *rhythmus*: *rhyme* and *rhythm* are not identical in meaning. It is very natural that L. *rhythmus*, which signified metrical writing, should be gradually applied to the *rhyme* which became the most striking and characteristic feature in such compositions. —*Rime*, in early English (and the same is true of Ger. *reim* and the other forms of the word in northern tongues as well as in the Romanic), meant simply a poem, a numbered or versified piece (compare Lat. *numeri*, numbers = verses, versification); but it has now come to signify what is the most prominent mark of versification in all these tongues, namely, the recurrence of similar sounds at certain intervals. As there may be various degrees and kinds of resemblance between two syllables, there are different kinds of R. When words begin with the same consonant, we have *Alliteration* (q.v.), which was the prevalent form of R. in the earlier Teutonic poetry (e.g., Anglo-Saxon). In Spanish and Portuguese, there is a peculiar kind of R. called *Assonance*, consisting in the coincidence of the vowels of the corresponding syllables, without regard to the consonants; this accords well with the character of these languages, which abound in full-toned vowels, but is ineffective in English and other languages in which consonants predominate. In its usual sense, however, R. denotes correspondence in the final syllables of words, and is used chiefly to mark the ends of the lines or verses in poetry. Complete identity in all the parts of the syllables constitutes what the French call *rich R.* as in *modèle*, *fidèle*; *beauté*, *santé*. But though such rimes are not only allowed but sought after in French, they are considered faulty in English, or rather as not true rimes. No careful writer would make *deplore* rime with *explore*. Riming syllables in English must agree so far, and must differ so far; *the vowel and what follows it—if anything follow it—must be the same in both; the articulation before the vowel must be different*. Thus, mark rimes with *lark*, *bark*, *ark*, but not with *remark*. In the case of *mark* and *ark*, the absence of any initial articulation in the last of the two makes the necessary difference. As an example of R. where nothing follows the vowel, we may take be-

RIME.

low, which rimes with fore *go*, or with *O!* but not with *lo*. To make a perfect R., it is necessary, besides, that both the syllables be accented; *free* and merrily is hardly an allowable R., though such rimes are used by some writers. It is to be noted that R. depends on the sound, and not on the spelling. *Plough* and *enough* do not make a R., nor *ease* and *decease*.

Such words as *roaring*, *de-ploring*, form *double* rimes; and *an-nuity*, *gra-tuity*, *triple* rimes. In double or triple rimes, the first syllable must be accented, and the others ought to be unaccented, and to be completely identical in sound. In the sacred Latin hymns of the middle ages, the rimes all are double or triple. This was a necessity of the Latin language, in which the inflectional terminations are without accent, which throws the accent in most cases on the syllable next the last—*do-lorum*, *vi-rorum*; *sup-plicia*, *con-vicia*. Although rimes occur chiefly between the end-syllables of different lines, they are frequently used within the same line, especially in popular poetry:

And then to see how ye're negleckit,
How *huff'd*, and *cuff'd*, and disrespeckit.

Burns.

And ice mast-high came floating by.

Coleridge.

(See LEONINE VERSES.)

When two successive lines rime, they form a *couplet*; three form a *triplet*. Often the lines rime alternately or at greater intervals, forming groups of four (*quatrains*) or more. A group of lines embracing all the varieties of metre and combinations of R. that occur in the piece, forms a section called a *stave*, sometimes a *stanza*, often, but improperly, a *verse*. In the days of Acrostics (q.v.) and other conceits, it was the fashion to interlace rimes in highly artificial systems; the most complex arrangements still current in English are the Sonnet (q.v.) and the Spencerian (q.v.) stanza. Tennyson has accustomed the English ear to a quatrain, in which, instead of alternate rimes, the first line rimes with the fourth, and the second with the third.

It is a mistake to deem R. a mere ornament to versification. Besides being in itself a pleasing musical accord, it serves to mark the endings of the lines and other sections of the metre, and thus renders the Rhythm (q.v.) more distinct and appreciable than the accents alone can do. So much is this the case, that in French, in which the accents are feeble, metre without R. is so indistinguishable from prose, that blank verse has never obtained a footing, notwithstanding the war once waged by French scholars against rimed versification. 'The advantages of rime,' says Guest (*English Rhythms*), 'have been felt so strongly, that no people have ever adopted an accentual rhythm without also adopting rime.' The Greek and Latin metres of the classic period, depending on time or quantity, and not on accent, were

able to dispense with the accessory of R.; but, as has been well observed by Trench (*Sacred Latin Poetry, Introduction*, 1864), even ‘the prosodic poetry of Greece and Rome was equally obliged to mark this (the division into sections or verses), though it did it in another way. Thus, had dactyls and spondees been allowed to be promiscuously used throughout the Hexameter (q.v.) line, no satisfying token would have reached the ear to indicate the close of the verse; and if the hearer had once missed the termination of the line, it would have been almost impossible for him to recover it. But the fixed dactyl and spondee at the end of the line answer the same purpose of strongly marking the close, as does the rime in the accentuated verse; and in other metres, in like manner, licenses permitted in the beginning of the line are excluded at its close, the motives for this greater strictness being the same.’ It is chiefly, perhaps, from failing to satisfy this necessary condition, that modern unrimed verse is found unsatisfactory, at least for popular poetry; and it may be doubted whether it is not owing to the classical prejudices of scholars that our common English blank verse got or maintained its hold. It may however be conceded that a defective or strained R. is worse than none; such futile attempts at art reduce some hymns in common use to the grade of doggerel.

The objection that R. was ‘the invention of a barbarous age, to set off wretched matter and lame metre,’ rests on ignorance of its real history. It cannot be considered as the exclusive invention of any particular people or age. Its use has its due limits; but in its place it is something human, and universal as poetry or music—the result of the instinctive craving for well-marked recurrence and accord. The oldest poems of the Chinese, Indians, Arabians, etc., are rimed; so are those of the Irish and Welsh. In the few fragments of the earliest Latin poetry extant, in which the metre was of accentual, not quantitative kind, there is a manifest tendency to terminations of similar sound. This native tendency was overlaid for a time by the importation from Greece of the quantitative metres; yet even under the dominance of this exotic system, riming verses were not altogether unknown; Ovid especially shows a liking for them:

Quot cœlum stellas, tot habet tua Roma puellas;

and in the decline of classicality they became more common. At last, when learning began to decay under the irruptions of the northern nations, and a knowledge of the quantity of words—a thing in a great measure arbitrary, and requiring to be learned—began to be lost, the native and more natural property of accent gradually reappeared as the ruling principle of Latin rhythm, and with it the tendency to rime. In this new vehicle the early Christian poets sought to convey their new ideas and aspirations. The rimes were at first often rude,

RIMINI—RIMMING.

and not sustained throughout, as if lighted upon by chance. Distinct traces of the adoption of R. are seen as early as the hymns of Hilary (died 368), and the system attained its greatest perfection in the 12th and 13th c. In refutation of the common opinion, that the Latin hymnologists of the middle ages borrowed the art of R. from the Teutonic nations, Dr. Guest brings the conclusive fact, that no poem exists written in a Teutonic dialect with final R. before Otfried's *Evangelij*, written in Frankish about 870. Alliteration had previously been the guiding principle of Teutonic rhythms; but after a struggle, longer protracted in England than on the continent, it was superseded by end-rimes.—See Guest's *History of English Rhythms* (2 vols. Lond. 1838), where the whole subject is learnedly and elaborately treated; Trench's *Sacred Latin Poetry, Introduction* (Lond. 1864); F. Wolf, *Ueber die Lais, Sequenzen, und Leiche* (Heid. 1841).

RIMINI, *rě'mē-nē* (anc. *Ariminium*): famous old city of Italy, prov. of Forlì, in Romagna; having the Adriatic on the n., the small stream Ausa on the e., and the Marecchia river on the w. It seems to have been inhabited first by the Umbrians, then for many centuries by the Etruscans. The Senones, a Gaulish tribe, took the place B.C. 4th c., and Brennus, toward the end of the same c., fixed his seat here. The Gauls were dispossessed by the Romans after a century of occupation, and R. became a Roman military colony and cap. of Gallia Togata. Later the great Flaminian Way was constructed from R. to Rome; and the town was connected by other great highways with the important places in n. Italy. A marble bridge of 5 arches, built in the time of Augustus, across the Marecchia, is yet standing, as is also the marble arch erected by decree of the senate in honor of that emperor. After the downfall of the Rom. empire, R. was a bone of contention for Goths, Byzantines, Longobards, Franks, popes, emperors, Guelfs and Ghibellines: under the family of Malatesta, R. was for 200 years prominent among the states of mediæval Italy. In modern times its prosperity and size have declined.—R. has been a bishop's see since 260. It has fine streets, well-built houses, a handsome town hall with porticoes, many fine churches—including the cathedral, a noble pile erected by Leone Battista Alberti: its interior is full of monuments. In the Piazza Cavour is a bronze statue of Pope Paul V.; in the Piazza Giulio Cesare a pillar marks the spot on which Julius Cæsar harangued the 13th legion after the crossing of the Rubicon. There is a considerable public library, founded 1617 now containing 23,000 vols. The Palazzo del Comune has a small collection of paintings. The industries of R. are fishery, sulphur mining, silk weaving, and traffic. Pop. over 13,000.

RIMMING: see under RIM 1:

RIMMON—RINFORZANDO.

RIMMON, n. *rĭm'mōn*: a Syrian god worshipped at Damascus.

RIMOSE, a. *rĭ-mōs'*, or **RIMOUS**, a. *rĭ'mūs* [L. *rīmōsus*, full of cracks—from *rĭma*, a cleft: It. *rimoso*]: in *bot.*, covered with cracks or fissures, mostly parallel, as the bark of a tree; chinky. **RIMOSE'LY**, ad. *-lĭ*. **RIMOSITY**, n. *rĭ-mōs'ĭ-tĭ*, the state of being rimose or chinky. **RIMULOSE**, a. *rĭm'ū-lōs*, having small marks or chinks.

RIMPLE, v. *rĭm'pl* [AS. *hrympelle*; O. Dut. *rimpel*, a wrinkle]: to wrinkle; to pucker; to corrugate: N. a fold or wrinkle. **RIM'PLING**, imp. **RIM'PLED**, pp. *-pld*: **ADJ.** puckered; wrinkled.

RIND, n. *rĭnd* [AS. *rind*; Dut. and Ger. *rinde*, crust or bark]: the skin or outer coat of fruit, etc.; the peel; the bark of trees.

RINDERPEST, n. *rĭn'dĕr-pĕst* [Ger. *rinderpest*—from *rinder*, black cattle, kine; *pest*, a pestilence]: cattle-plague; a peculiarly fatal disease of cattle and dairy stock, propagated by contagion: see **CATTLE-PLAGUE**.

RINDLE, n. *rĭn'dl* [O. Eng. *run*; Scot. *rin*]: a small stream, water-course, or gutter.

RINEHART, *rĭn'hārt*, **WILLIAM HENRY**: sculptor: 1825, Sep. 13—1874, Oct. 28; b. Carroll co., Md. In 1844 he became apprentice in a marble-yard at Baltimore, and began the study of drawing and other arts. His employers recognized his ability, and soon furnished a studio for him, where he produced several works of merit. He studied in Italy 1855–57, returned to Baltimore, where he remained only a short time, and 1858 took up his residence in Rome, though he visited the United States 1866 and 72. He finished the bronze doors of the national capitol at Washington, which had been left incomplete at the death of Crawford; executed a statue of Chief-Justice Taney for the state of Maryland, and a large number of ideal works, among which are *Hero and Leander*, *St. Cecilia*, *Clytie*, *The Woman of Samaria*, and *The Angel of the Resurrection*. He died at Rome.

RINFORZANDO, ad. n. *rĭn'fōr-tsân'dō* [It.]: in *music*, direction to the performer indicating increase in volume of sound and in emphasis.

RING.

RING, n. *řing* [Icel. *hringr*; OHGer. *hrinc*, a circle, a ring: Dan. *kringel*, crooked, twisted]: a circle; anything in the form of a circle: a small hoop of gold,



variously ornamented, worn as on the finger (see below): a hoop: a circular course; the betting arena on a race-course: in *politics*, a small company of persons privately associated for certain objects, usually for personal advantage: V. to encircle; to fit with a ring; to cut a ring of bark out of a tree; to form a circle. RING'ING, imp. RINGED, pp. *řingd*. RING'LESS, a. -lēs, without a ring. RING-BOLT, an iron bolt having a ring at one

Ring-mail.

end. RING-DOVE, wood-pigeon or cushat (see PIGEON).

RING-FENCE, a fence encircling an estate within one inclosure; an inclosing fence or line. RING-FINGER, the

third finger of the left hand, on which the wedding-ring is put.

RING-HEAD, an instrument used to stretch woolen cloth. RING-MAIL, in armor, small rings of steel

sewed edgewise upon a strong garment of leather or quilted cloth. RING-SAIL, a light sail set abaft the spanker. RING-SHAPED, a.

having the shape of a ring. RING-STREAKED, a. having circular streaks or lines on the body. RING-TAIL, the female of the hen-harrier.

RING-TAILED CAT, n. name given by the miners to *Bassaris astuta*, one of the *Procyonidæ*, occurring in California, Texas, and the higher regions of Mexico. It is about 3 ft. long, the tail being one-third of this length. The fur is brown, and the tail beautifully ringed. It is easily tamed, and makes an excellent mouser, whence its misleading popular name; called also *cacomixle*. FAIRY RINGS: see FAIRY RINGS.



Ring-sail.

RING, v. *řing* [Icel. *hringia*, to ring bells: Dan. *ringe*; Sw. *ringa*; Dut. *ringen*, to ring or tinkle]: to sound, as a bell or other sonorous body; to cause to sound; to resound; to utter a sound as a bell; to tinkle; to be spread abroad, as, the whole town rang with the news: N. the sound as of a bell or a metallic body; the loud repeated sounds, as of voices in acclamation; a peal or chime of bells. RING'ING, imp. RANG, pt. *řäng*. RUNG, pp. *řung*. RINGER, n. *řing'ér*, one who rings bells. RING-ING THE CHANGES, *literally*, ringing a peal in which the order of the bells is changed in each round; hence, repeating the same thing again and again with variations; also, a trick employed by vagabond gamesters to cheat their victims by changing or juggling with money.

RING.

RING: circle of gold or other material worn as ornament. The practice of wearing rings has been widely prevalent in different countries and at different periods. Rings have been used to decorate the legs, arms, feet, toes, neck, fingers, nose, and ears. The practice of wearing rings suspended from the nose, which is bored for that purpose, has been found among various savage tribes, particularly the South Sea islanders. Bracelets, necklaces, and ear-rings have been worn among nations both savage and civilized; but the most universal and most famous use of rings is on the finger. Finger-rings are alluded to in the Books of Genesis and Exodus; Herodotus mentions that the Babylonians wore them; and from Asia probably they were introduced into Greece. The rings worn in early times were not purely ornamental, but had also their use as signet-rings. The Homeric poems make no mention of rings, except ear-rings; but in the later Greek legends, the ancient heroes are described as wearing finger-rings; and every freeman throughout Greece seems afterward to have had one. The practice of counterfeiting signet-rings is alluded to as existing in Solon's time. The devices on the earlier rings were probably cut in the gold; but at a later period, the Greeks came to have signet-rings set with precious stones, which gradually passed from articles of use into the category of ornament. Persons were no longer satisfied with one ring, but wore two or three—and their use was extended to women. The Lacedæmonians wore iron rings. The Romans are said to have derived the use of rings from the Sabines; their rings were at first, as those of the Greeks, signet-rings, but of iron. Every free Roman had a right to wear one; and till the close of the republic, the iron ring was worn by those who affected the simplicity of old times. Ambassadors, in the early age of the republic, wore gold rings as part of their official dress—a custom afterward extended to senators, chief magistrates, and in later times to the equites, who were said to enjoy the *jus annuli aurei*, from which other persons were excluded. It became customary for the emperors to confer the *jus annuli aurei* on whom they pleased, and the privilege grew gradually more extensive, till Justinian embraced within it all citizens of the empire, whether *ingenui* or *libertini*. The signs engraved on rings were very various, including portraits of friends or ancestors, and subjects connected with mythology or religion; and in the art of engraving figures on gems, the ancients far surpassed artists of modern times (see GEM). The later Romans, like the Greeks, crowded their fingers with rings, and the more effeminate among them sometimes had a different ring for summer and winter. Rings entered into the ground-work of many oriental superstitions, as in the legend of Solomon's ring, which, among its other marvels, sealed up the refractory Jinns in jars and cast them into the Red Sea. The Greeks mention various rings endowed with magic power, as that of Gyges,

which rendered him invisible when its stone was turned inward; and the ring of Polycrates, which was flung into the sea to propitiate Nemesis, and found by its owner inside a fish; and there were persons who made a lucrative traffic of selling charmed rings, worn mostly by the lower classes.

Various explanations have been given of the connection of the ring with marriage. It appears that wedding-rings were worn by the Jews prior to Christian times. Fig. 1 shows a Jewish marriage-ring beautifully wrought in gold filigree, and richly enamelled, recently in possession of Lord Londesborough. It has been said that

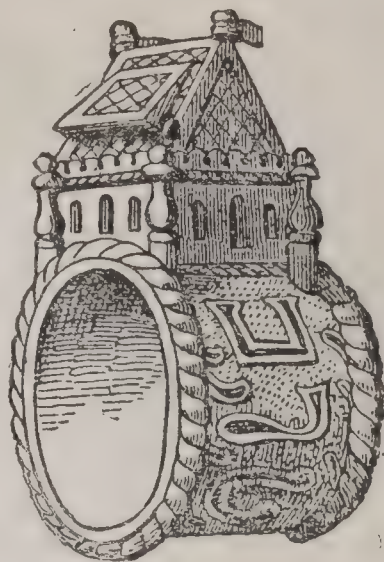


Fig. 1.

as the delivery of the signet-ring to any one was a sign of confidence, so the delivery of a ring by the husband to the wife indicated that she was admitted into his confidence. Another explanation is, that the form of the ring symbolizes eternity and constancy; and it has been alleged that the left hand was chosen to denote the wife's subjection to her husband, and the third finger because it thereby pressed a vein which was supposed to communicate directly with the heart. The third finger has always been selected as the finger on which official rings are worn. Bishops on their consecration receive a ring to be worn on the third finger of the right hand, in order to indicate ecclesiastical authority; and doctors formerly, for a similar reason, wore a ring on the same finger. A ring has been much used at betrothal as well as marriage, and in many parts of the continent of Europe a wedding-ring is worn by the husband as well as the wife. Rings are occasionally worn on all the fingers (even on the first finger) except the thumb; the Germans usually wear a signet-ring on the first finger.

During the 16th, 17th, and 18th c. it was very common to have mottoes inscribed on rings (fig. 2), including wedding-rings, and the motto was called the *posy* or *chanson*. The ring was the symbol of the dominion of Venice over the Adriatic; and yearly, on Ascension Day, a ring was thrown by the doge from the ship *Bucentaur* into the sea, to denote that as the wife is subject to her husband, so is the Adriatic Sea to the republic of Venice.



Fig. 2.

In pagan times in Europe, the ring seems to have been connected with fidelity or with espousals. Fig. 3 shows

RING.

a form of betrothal-ring called a *gimmel*, or linked ring, used in later times; the upper fig. shows the three parts



Fig. 3.

brought together; the lower fig., the parts separately. By an ancient Norse custom, described in the *Eyrbyggja Saga*, when an oath was imposed, he by whom it was pledged passed his hand through a silver ring, sacred to that ceremony; and in Iceland the ceremony of betrothal used to be accompanied by the bridegroom passing his four fingers and thumb through a large ring, and in this manner receiving the hand of the bride, as represented in a woodcut in an old ed. of *Olaus Magnus*. As lately as 1780, the practice existed in Orkney of a man and woman plighting their faith at the Standing Stones of Stennis by joining their hands through the perforated stone of Odin.

Rings were greatly used in ancient Egypt. They were called *tebh*, finger-rings, and *khatem*, signets, both kinds being represented in the sculptures and mentioned in the hieroglyphs. Besides these two classes, solid rings of gold and silver were used as money (see RING MONEY). Rings for the fingers are of most remote antiquity, and were emblems of rank and power. They were of two kinds: the solid ring, of gold, silver, copper, or iron, having a square or oval bezel, on which the subject to be impressed was sunk or cut in intaglio. The oldest of these were of gold, iron not having been in use till the Roman rule over Egypt, or about the 1st c. after Christ. A remarkably fine specimen is one of a Hemphite priest or flamen of the monarch Cheops, in the time of the 26th dynasty, about B.C. 5th c. But rings of this class are probably not so old as the other kind, which have a square or oblong plinth of gold, stone, or glass, on which the subjects are engraved also in intaglio. These plinths are pierced through their long axis to admit the metal ring on which they revolve, and are secured to it by wire coiled round the ring at the place of insertion. Scarabæi of glazed steatite, set in frames of gold or silver, were often used for bezels.

RINGBONE—RINGGOLD.

The bezels have their base engraved with hieroglyphs and other subjects, the names of monarchs, figures of deities, mottoes, and devices. Such rings were used by functionaries; and in the account of the investiture of Joseph in the Book of Genesis, a ring was put on his finger as a symbol of his rank. The poorer classes had rings of ivory or blue porcelain, with solid oval bezels, having in intaglio similar subjects. Rings appear to have been placed on all the fingers, and even the thumb, and the hands of ladies were loaded with these costly ornaments. A cat, emblem of the goddess Bast or Pasht, the Egyptian Diana, was a favorite subject of ladies' rings. The third finger of the left hand was the ring-finger. Some remarkable instances of gold rings with revolving bezels have been found—e.g., that of Thothmes III. in the collection of Lord Ashburnham, and another with the name of the monarch Horus, which contained gold to the value of \$100. Such rings could give two impressions, like the seal and counterseal of modern times.—Wilkinson, *Mann. and Cust.* III. 370, *et seq.*; Bonomi, *Trans. R. Soc. Lit.*, New Series, I. 108; Prisse, *Mon. Egypt.*, Pl. xlvii.; also *Antique Gems and Rings*, by King, 2 vols. 1872; *Finger Ring Lore*, by William Jones, 1876.

RING BONE, in Horses: a circle of bony matter round the horse's coronet, most frequent in the fore limbs of draught horses with short upright pasterns, which are much worked on the hard roads; but appearing occasionally also on the hind limbs of lighter-bred horses. It is sometimes hereditary but is often caused by a violent strain. Though the lameness can often be relieved by proper treatment, R. is always a blemish. Rest should be enjoined, and cold bran poultices or swabs, kept cool and moist by any refrigerant mixture, applied continuously until heat and tenderness are removed, when the fetlock is to be dressed with fly-blister or the ointment of red iodide of mercury.

RINGENT, a. *rĭn'jĕnt* [L. *ringens* or *ringen'tem*, opening wide the mouth—from *ringor*, I open the mouth]: in *bot.*, applied to a labiate flower in which the upper lip is much arched and the lips are separated by a distinct gap; gaping.

RINGGOLD, *rĭng'gōld*, CADWALADER: naval officer: 1802, Aug. 20—1867, Apr. 29; b. Md. He became midshipman in the navy 1819, was in the expedition against the pirates in the W. I. 1823-4, commanded a brig in an exploring expedition to the Antarctic continent 1838, aided in the survey of Puget Sound and San Francisco harbor, was on special duty at Washington 1859-60, and at the opening of the civil war was given command of the *Subine*, and assisted in the blockade of southern ports. He was promoted capt. 1856, commodore 1862, was placed on the retired list 1864, and promoted rear-admiral 1866. He died at New York.

RINGLEADER—RING MONEY.

RINGLEADER, *n.* *rĭng' lĕd-ĕr* [*ring*, and *leader*]: the leader of a ring; the head of a society engaged in an illegal enterprise; the head or chief of a riotous body of persons.

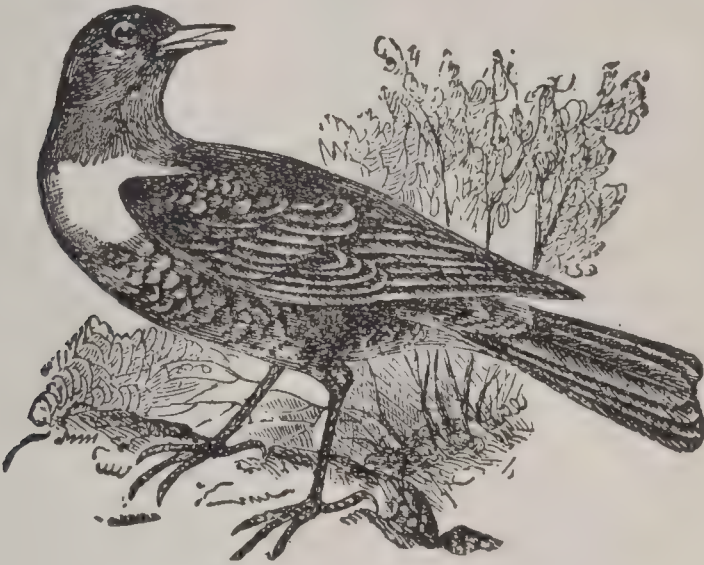
RINGLET, *n.* *rĭng' lĕt* [dim. of **RING** 1]: a small ring; a curl of hair. **RING'LETED**, *a.* having ringlets.

RING MONEY: primitive medium of exchange, consisting of the precious metals formed into rings, in an early stage of society, prior to the invention of coinage, but after the inconveniences of direct barter had been discovered. **R. M.** was in use among the Egyptians. The gold or silver rings were formed of a wire or bar of metal bent into a circle, but not quite united at the extremities, so that it could be easily made into a chain, from which portions could be detached at pleasure. It seems probable that the individual loops were not adjusted to a particular weight, but that each bundle of loops amounted in the aggregate to a particular weight. **R. M.** of gold and silver, similar to what is represented in the Egyptian paintings, was brought by Bonomi from Nubia. Some of the silver rings had been worn as bracelets, and were ornamented with engraved work. This kind of currency has probably never gone out of use in parts of Africa since the remote period when it was employed in paying the exactions of the Pharaohs. **R. M.** for African traders is, or was, not long ago, regularly manufactured at Birmingham, England, of copper, or an alloy of copper and iron, and known under the name of 'Manillas.'

The **R. M.** of the East early found its way to western Europe. In Sweden and Norway its use seems to have continued till the 12th c., or even later. A Norse law about 1220 alludes to an established **R. M.**, of which each ring was of definite weight. The mediæval had so far advanced beyond the Egyptian as to have each ring adjusted to a special weight, for which it might pass without weighing. Cæsar mentions gold and iron rings as used in Gaul and Britain for money; and gold and silver and occasionally brass **R. M.** has been dug up in many parts of Britain, consisting of bars of metal bent in circular shape. A remarkable silver chain of 33 rings, weighing above 93 ounces, was dug up 1805 near Inverness, in the course of the excavations for the Caledonian canal, and is now in the museum of the Scottish Antiquaries. Some of the larger specimens of gold **R. M.** are very highly decorated. The gold torque worn round the neck of the Gallic warriors, weighing sometimes as much as four lbs., besides being a personal ornament, was adjusted to a certain weight as money.—There were various modifications of **R. M.**—e. g., the silver fish-hook money of Ceylon, mentioned by Tavernier.

RING OUZEL.

RING OU'ZEL (*Turdus torquatus*, or *Merula torquata* :) species of thrush, rather larger than the blackbird, which it much resembles. It is a native of Europe, chiefly of the w. parts; spends the winter in s. Europe or in Africa, and visits more northern regions in summer. It is frequent in many parts of the British Islands, not in the thickly-peopled districts. It makes its nest generally in heathy banks, often under a bush. The nest is of coarse grass, within which is a thin shell of clay and an inner lining of fine dry grass. The R. O. is a constant visitor of gardens in the neighborhood of its hunts, committing great depredations, particularly when cherries are ripening. In Scotland it is known as the *Moor Blackbird*. It is of dark-brown color, almost black; the feathers edged with blackish-gray, the



Ring Ouzel (*Turdus torquatus*).

feathers of the wings more conspicuously edged with gray; a crescent-shaped white collar on the throat. The song consists of a few loud, clear, and plaintive notes.

RINGWORM.

RINGWORM: popular term for several distinct forms of skin-disease which occur in patches of circular or annular form on the body, especially on the scalp. Thus, a species of Lichen (q.v.), known to dermatologists as *Lichen circumscriptus*, in which the papules assume a circular arrangement, is commonly regarded as R.; and the two species of Herpes (q.v.), *Herpes circinatus* and *H. Iris*, in which the vesicles occur in circular patches and in concentric rings, are usually included in the same term. These, however, are not true R. (*Tinea tonsdens*), which is a disease dependent on the presence of a special vegetable (fungus) parasite, now known to botanists as *Trichophyton tonsurans*, or hair-plant, and discovered 1845 by Malmsten. It consists of oval,



Parasitic Fungus from the Root of the Hair in a Case of True Ringworm, highly magnified.

(Copied from Aitken's *Science and Practice of Medicine*, 3d ed.)

A, isolated spores; B, spores united at their ends; C, C, empty tubes; D, sporular tubes.

transparent spores or globules, about $\frac{1}{7000}$ of an inch in diameter, mostly isolated, but sometimes connected by articulated filaments. This fungus is seated in the interior of the hair-roots, and the hairs and the fungi simultaneously increase in size. The diseased hairs lose their elasticity and break, when they have risen a line or two above the scalp. In these cases the short stump of hair soon loses all its characteristics. If the hair breaks before emerging from the scalp, a little prominence is formed, consisting of fungus, epidermis, and sebaceous matter, and the assemblage of such little prominences gives the scalp the rough appearance known as goose-skin. There are three varieties of true R., described by Aitken under the following names: (1.) R. of the Body (*Tinea circinatus*); (2.) R. of the Scalp (*Tinea tonsurans*); (3.) R. of the Beard (*Tinea sycosis*).

1. *Ringworm of the Body* appears first as a rose-colored and slightly-elevated spot about the size of a half-dime, on which a bran-like desquamation of epidermis soon begins, accompanied by slight itching.

RINGWORM.

This spot gradually increases in size, but retains its circular form; and as it extends, the healing process commences at the centre, so that the circular red patch is converted into a ring, inclosing a portion of healthy skin; and a ring thus formed may continue to increase till it reaches a diameter of four inches, or even more. It is apt to affect the face, the neck, the back, and the outside of the wrist. This form of R. frequently terminates spontaneously.

2. *Ringworm of the Scalp* usually occurs in children, especially when the nutrition is defective, or there is scrofulous taint in the constitution. It appears in the form of round, scaly, irritable patches on different parts of the head; and the irritation often occasions the formation of minute vesicles. The hairs at these spots become dry and twisted, and are easily extracted; and when the disease advances, they break close to the scalp if an attempt is made to extract them. The stumps, and the epidermis surrounding them, become covered with a characteristic grayish-white powder, consisting of the sporules of the fungus. The diseased parts are slightly elevated and puffy, and differ from the healthy scalp in color, being bluish or slate-colored in dark persons, and grayish-red or yellow in fair patients. The inflammation will last as long as the growth of the fungi continues; and even when the fungi die spontaneously, as sometimes occurs, the affected spots remain permanently bald, the hair-bulbs having become obliterated.

3. *Ringworm of the Beard* occurs chiefly on the chin, hairy part of the cheeks, and upper lips of men; but it occasionally attacks the axillæ and pubic region of women. It commences like R. of the body, but when the deeper structures become affected, pustular indurations, resembling Acne (q.v.), occur, and the hairs become readily detached. On examining the hairs under the microscope, it is seen that they are thickened; that their bulbs are partially disorganized; and that the medullary portion is atrophied.

The essential point in the treatment of all the varieties of true R. is to apply to the roots of the hairs a preparation which will destroy the fungus; but before this can be done, the hair must be removed, if the disease has not already effected the removal sufficiently. This is best effected with small pincers about three inches long, and constructed so that the two extremities, which should be a couple of lines broad, shall come together very exactly. Or, in place of using the forceps, an ointment of lime and carbonate of soda, of each 1 part, and 30 parts of lard, may be applied, which will soon remove the hair. French dermatologists recommend the application of 'l'Huile de Cade,' or 'oil of pitch,' obtained by dry distillation of the wood of the *Juniperus oxycedrus*, to the part from which the hairs are to be removed, believing that it lessens the sensibility, and tends to loosen the attachment of the hair. To

RINK—RIO BRAVO DEL NORTE.

destroy and remove the plant, lint dipped in a solution of sulphurous acid should be continuously applied—sulphurous acid being probably the most energetic parasiticide at present known. Other solutions have been applied with the same object. The general health must be attended to.

R. in the lower animals is common among young animals, is decidedly contagious, and communicable from man to the animals, probably also from them to man. Commencing with a small itchy spot, usually about the head or neck, or root of the tail, it soon spreads, producing numbers of scurfy circular bald patches. It is unaccompanied by fever, and seldom interferes seriously with health. After washing with soap and water, the spot may be touched lightly every day with a pencil of nitrate of silver, or a little of the red ointment of mercury, or some iodide of sulphur liniment may be rubbed in.

RINK, *n.* *rīngk* [a form of RING 1: Ger. *ring*, the arena]: in *Scot.*, a course; a race; a straight line or mark of division; a long clear space on a frozen pond or any considerable piece of water, for the Scotch national game of curling; in *America*, a skating-ground on the ice prepared by clearing away the snow; a hard smooth surface artificially prepared for 'roller skating,' an indoor amusement in imitation of skating on ice.

RINNS OF GAL'LOWAY: see WIGTONSHIRE.

RINSE, *v.* *rīns* [F. *rincer*; Dan. *rense*, to cleanse: Icel. *hreinn*; Ger. *rein*; Goth. *hrains*; Dan. *reen*, pure, clean]: to cleanse by the introduction of water; to give a final cleansing to after washing, as to linen; to wash by laving. RINS'ING, *imp.*: N. a cleansing with a second water. RINSED, *pp.* *rīnst*. RINSER, *n.* *rīns'ér*, one who rinses.

RIOBAMBA, *rē-ō-vām'bâ*: town of Ecuador, 100 m. s. from Quito, among the Andes, on an affluent of the Pastasa, a large branch of the Amazon. It is sometimes called New R., having been built instead of the former town of R., destroyed by an earthquake 1797, whose ruins are 9 m. distant at the foot of Chimborazo.—Pop. about 16,000, mostly Indians.

RIO BRANCO, *rē-ō brân'kō*: river of Brazil, largest affluent of the Rio Negro, rising near the sources of the Orinoco, lat. about 3° n., long. about 64° w. It flows e. to long. 61° w., then s.s.w. to the Rio Negro, which it joins after a course estimated at 700 m. At its junction with the Negro it is more than a mile in breadth, and its lower course resembles a string of lakes connected by narrow canals. Its navigation is much impeded by rapids and waterfalls.

RÍO BRAVO DEL NORTE, or RIO GRAN'DE: see BRAVO DEL NORTE.

RIO DE JANEIRO.

RIO DE JANEIRO, *rě'ō dā zhā-nā'ě-rō*: maritime province in s.e. Brazil; bounded s. and e. by the Atlantic; 26,530 sq. m. The coast on the n.e. is low and lined with lagoons; but in the s. the scenery of the shores is unusually beautiful. Mountain-ranges occupy the middle of the province, among which the peaks of the Organ Mountains, rising to 6,000 or 7,000 ft., are conspicuous. Of the rivers the Parahiba is the chief. The soil is fertile; principal productions are sugar, coffee, cocoa, cotton, rice, and maize. The province is traversed by a railway. The cap. is Praia Grande or Nitherohi, which, including the district of St. Domingo, contains about 25,000 inhabitants. The city Rio de Janeiro is a municipality distinct from the province, though inclosed by it.—Pop., province without the city (1888) 1,164,468; (1893) 1,349,901.

RIO DE JANEIRO, generally called Rio: city, cap. of the Brazilian republic, and the largest and most important commercial emporium of S. America; on a magnificent harbor, 75 m. w. of Cape Frio, lat. $22^{\circ} 54'$ s., long. $43^{\circ} 15'$ w. The harbor or bay of R., said, apparently with justice, to be the most beautiful, secure, and spacious bay in the world, is landlocked, being entered from the s. by a passage about a mile in width. It extends inland 17 m., and has an extreme breadth of about 12 m. Of its numerous islands, the largest, Governor's Island, is six m. long. The entrance of the bay, guarded on either side by granite mountains, is deep, and so safe, that the harbor is entered without aid of pilots. On the left of the entrance rises the peak called, from its peculiar shape, Sugar-loaf Mountain; and all round the bay, the blue waters are girdled with mountains and lofty hills of every variety of picturesque and fantastic outline. The harbor is protected by a number of fortresses. The city stands on the w. shore of the bay, about 4 m. from its mouth. Seven green and mound-like hills diversify its site; and the white-walled and vermilion-roofed houses cluster in the intervening valleys, and climb the eminences in long lines. From the central portion of the city, lines of houses extend four m. in three principal directions. The old town, nearest the bay, is laid out in squares; the streets cross at right angles, are narrow, and are paved and flagged; and the houses, many of granite, are commonly two stories high. West of it is the elegantly built new town; and the two districts are separated by the Campo de Santa Anna, an immense square or park, on different parts of which stand an extensive garrison, the town-hall, the national museum, the palace of the senate, the foreign office, a large opera-house, etc. From a number of springs on and around Mt. Corcovado (3,000 ft. high, $3\frac{1}{2}$ m. s.s.w. of the city), water is conveyed to R. by a splendid aqueduct, supplying the fountains for the numerous squares. Great municipal improvements have been made; most of the streets are now as well paved as those of the finest European capitals; the city is

RIO GRANDE DO NORTE.

abundantly lighted with gas and electricity; and commodious wharfs and quays are built along the water-edge. R. contains several excellent hospitals and infirmaries, asylums for foundlings and female orphans, and other charitable institutions, some richly endowed; about 60 chapels and churches, generally costly and imposing structures, with rich internal decorations; and several convents and nunneries. In the College of Pedro II., founded 1837, the various branches of a liberal education are efficiently taught by a staff of eight or nine professors; the Imperial Acad. of Medicine, with full corps of professors, is attended by more than 300 students; there is also a theol. seminary. The national library contains 100,000 vols. The trade and commerce of R. is great, and annually increasing. 1870-80, the total value of imports was about \$46,170,000 per annum; total value of exports varied from \$43,740,000 to \$51,030,000. In the year 1878-9, the value of coffee exported was \$44,916,878; gold in bars and dust, \$936,181; diamonds, \$227,351; tobacco, \$387,036; hides, \$411,573. The chief imports are silk, linen, cotton, and woollen goods, iron, etc. Of the imports in 1899 Great Britain furnished 41 per cent., the United States 8 per cent. Of the coffee exports, 68 per cent. went to the United States. In 1900 there entered the port 843 sea-going vessels, of 1,522,754 tons. Steam communication with other ports of Brazil is frequent; European steamships arrive and depart almost daily, and there is telegraphic connection with Europe. The capital and its environs are served by two railways, and eight different lines of tramway.

The vicinity of R. was settled first by the French 1555, but was occupied 1567 by the Portuguese, who founded the present city, and gave it the name St. Sebastian. For 140 years after its foundation, the city had tranquil prosperity, and 1763 it superseded Bahia as the seat of govt., and became the residence of the viceroys of Portugal. On the proclamation of independence 1822 (see BRAZIL), R. became cap. of the Brazilian empire, and is now the seat of the republican govt.—Pop. (1900) 750,000.

RIO DE LA PLA'TA: see PLATA, RIO DE LA.

RIO GRANDE, *rěō grân'dā*: name sometimes applied to the upper course of the river Parana (q.v.) in Brazil.

RIO GRAN'DE: river of Senegambia (q.v.).

RIO GRAN'DE, or RIO GRANDE DEL NORTE: see BRAVO DEL NORTE.

RIO GRAN'DE DO NORTE, *dō nor'tā*: small maritime state of Brazil, in the n. e. angle of the country; bounded n. and e. by the Atlantic; 22,190 sq. m.; pop. (1890) 268,273. It is named from a river, formerly called the Rio Grande, now the Potengi, which flows into the Atlantic at Natal; but the principal river is the Piranhas. The surface is flat along the shores, which are skirted by many dangerous shoals, but is hilly and mountainous in the interior. Salt is obtained in large quantity from

RIO GRANDE DO SUL—RIOM.

salt lakes, and building-stone is abundant. The soil, generally sterile, is fertile on the river-banks. The principal crop raised is cotton, and large herds of horses and cattle are reared on the pastures, which are extensive. About 35,000 bags of cotton were exported 1881. The capital and principal town is Natal, on the Potenzi or Rio Grande river.

RIO GRANDE DO SUL, in full, SAO PEDRO DO RIO GRANDE DO SUL, *soung pã'drô dô rê'ô grân'dã dô sôl*: maritime state of Brazil, the extreme south portion of the country; bounded n. and w. by the river Uruguay, s.w. by the republic of Uruguay, s.e. by the Atlantic; 91,310 sq. m. The central districts are occupied by a range of mountains, almost parallel to the Uruguay, and from which the land falls away into plains toward the Uruguay on the w., and the Atlantic on the east. Between the mountains and the flat coast regions are the large lakes Merim and Des Patos—the latter, 175 m. long and about 40 m. broad. Salubrity of climate and fertility of soil admirably adapt this region for European immigration. The great wealth of the state is in its flocks and herds; it is stated that 500,000 cattle, whose hides and flesh are preserved, are slaughtered here annually, while as many more are driven n. for ordinary consumption. All the cereals and fruits of central Europe can be grown here advantageously, and the agricultural resources are immense. A considerable area is now covered with crops of maize, beans, wheat, and potatoes; and the agricultural products, formerly of little account, now form one-eighth of the total exports. The gold-mines of the province have yielded in one year 6,100 ounces, valued at about \$120,000. Principal articles of export are beans, horns, hair, cattle and horse hides, grease and tallow, jerked or dried beef, tongues, mandioc flour, and maize. Of the most of these articles, the export has in a few years considerably more than doubled. Half of all the imports consists of cotton, woolen, and linen manufactures, coals, earthenware, and hardware from Great Britain. The principal towns are Porto Alegre (q.v.) and São Pedro (or Rio Grande). The latter, a prosperous and increasing seaport at the s. extremity of the Lake des Patos, and close to the sea (pop. 18,000), imported (1882) goods to the value of \$6,779,000: chief articles of export were, beef valued at \$2,433,000; and hides, tallow, and hair, etc., \$4,345,000. The shipping entered 1881, consisted of 554 vessels of 133,777 tons; cleared, 555 of 133,208 tons. The trade is conducted almost wholly by Englishmen and Germans.—Pop. (1890) 897,455.

RIOM, *rê-ông'*: small town of France, dept. of Puy-de-Dôme, picturesquely situated on a hill, 1,173 ft. above sea-level, 8 m. n.n.e. of Clermont. It is built of dark lava, and is a perfect treasure of domestic architecture, especially of the Renaissance. Linen, leather, and brandy are manufactured. Pop. (1901) 11,189.

RIO NEGRO—RIOT.

RIO NE'GRO, *rě'ō nā'grō* : one of the principal affluents of the Amazon, rising in an unexplored district of the south of the United States of Colombia (New Granada), flowing generally s.s.e., and joining the Amazon at Manaos, after a course estimated at 1,000 miles. It receives from the n. the Cassiquiare (q.v.), giving communication between the Orinoco and the Amazon; also the Cababuri, Padaviry, Branco, and other large streams; from the s. comes its greatest affluent, the Vaupes. It is $1\frac{1}{2}$ m. broad when it enters the Amazon.

RIO NE'GRO : river of S. America, forming the greater part of the boundary between the Argentine Republic and Patagonia. At its source, it is called by the natives Melly-roumey-co—i.e., *four small rivers*—from the fact that it is formed by four head-waters from the bosom of the Cordilleras. It is afterward called by the natives Courou-roumey-co, or Black River (Span. Rio Negro), from the dark color of its waters, caused by the depth and narrowness of its channel. It flows first n.e., then e. and s.e. through the plains to the Atlantic in lat. $41^{\circ} 3'$ s., after a course of more than 700 m. Shoals and islands obstruct its channel, and it is navigable only 20 m. above its mouth.

RIONERO, *rě-ō-nā'rō* : large town of s. Italy, province of Potenza, 7 m. s. of Melfi. It produces grain, maize, pulse, and wine. The inhabitants are agriculturists and shepherds. There is a great trade in maple snuff-boxes, manufactured here. Pop. 12,000.

RIOSECO, MEDINA DE, *měh-dě'nā dā rě'ō-sā'kō* : small town of Spain, province of Valladolid, 26 m. n.w. of the city of Valladolid; on two hills in a fertile district. In the middle ages, it was the centre of considerable trade, but it has much declined in recent times. The chief church is that of Santa Maria, a beautiful Gothic edifice, richly decorated, and containing several excellent pictures. Here, 1808, a Spanish army, 50,000 strong, under Blake and Cuesta, was defeated, with a loss of 6,000 men, by 12,000 French troops, under Bessières, with the result that Joseph Bonaparte was placed on the throne of Madrid. After the defeat, the unresisting town was sacked with more than wonted barbarity. Pop. (1887) 4,776.

RIOT, n. *rě'ōt* [OF. *rioter*, to attack with weapons, to rob: prov. F. *riota*, to chide, to brawl: It. *riotta*, riot: Gael. *raoit*, indecent mirth]: disturbance of the peace by few or many persons: wild and noisy festivity; excessive and expensive feasting: tumult; uproar: V. to raise an uproar or disturbance of the peace; to feast with loose and noisy mirth; to run to excess in feasting or other sensual indulgence. **RI'OTING**, imp.: N. act of one who riots; revelling. **RI'OTED**, pp. **RI'OTER**, n. *-ēr*, one who disturbs by riots. **RI'OTOUS**, a. *-ūs*, partaking of the nature of an unlawful assembly; seditious; uproarious; noisy and licentious in festivity. **RI'OTOUSLY**, ad. *-h*. **RI'OTOUSNESS**, n. *-nēs*, the state or

quality of being riotous. To RUN RIOT, to act or move without control or restraint.—*Riot* is a tumultuous disturbance of the peace by persons assembled by their own authority to execute some design in a violent and turbulent manner. By the statutes of most of the states there must be at least three offending actors. The wrongdoers must be engaged in some private purpose and not in a public attempt to overthrow or subvert the government by arms or force, which is treason. The action must be concerted, but need not be the result of previous deliberations. No distinction is made between the relative degrees of violence on the part of the rioters; all the participants are responsible for all that takes place. Mere presence alone is not sufficient to make a person guilty of engaging in a R.; he must in some way encourage it or take part therein. In some of the states statutes provide for compensation to parties whose property may be destroyed in consequence of mobs or riots, by the city or county in which such property is situated; provided the injury to or the destruction of the property was not aided or sanctioned by the carelessness or negligence of the owner. It is a crime for a person present at a R. to refuse to aid in suppressing it when ordered to do so by a duly authorized public officer. In all the states the militia may be ordered out to suppress a R. The crime of engaging in a R. is punishable by imprisonment, in most of the states from one to five years and also by a fine.

RIOUW: Netherlands residency or govt. in the Eastern Archipelago; comprising, since Siak and dependencies were taken from it, the peninsula of Tandjong Pinang, the Lingga-Riouw Archipelago, part of the coast of Sumatra n. of Djambi, and the adjoining kingdom of Indragiri; also the Tambilan, Anambas, and Natuna Islands; about 18,000 sq. m. Pop. (1881) of the residency, 100,000—including 200 Europeans, 30,000 Chinese, and the rest natives.

The islands of the archipelago are mountainous, the peak of Lingga rising to 3,712 ft. Many of them are covered with heavy timber and dense underwood. As far as known, the prevailing rocks are granitic and sandstone. Gold is found in Lingga, and tin was formerly extensively wrought; but the richer mines of Sinkep and the Carimon Islands, in the s. entrance of the Strait of Malacca, now yield the largest amount of that ore. Coal also is found in the Riouw-Lingga Islands.

The climate is not considered unhealthful, though at times the heat is intolerable. The chief products are sago, pepper, damar resin, gambir, gutta-percha, ratans, cotton, fruits, and many varieties of fine timber. Edible nests are abundant, and the waters swarm with fish. Agar-agar, tripang or bêche-de-mer, and shell-fish are largely collected. The native Malays gain a living chiefly by fishing, and the Chinese have extensive *Uncaria gambir* and pepper gardens. Imports, about \$2,000,000

RIP—RIPIENO.

a year; exports, rather less. The industries are manufacturing gambir, distilling arrack, weaving silks, ship-building, wood-cutting, tile and brick making, together with extensive fisheries. The original inhabitants are Malays, more numerous in Lingga than in the other islands. The strangers are Europeans in the pay of the Netherlands colonial govt., Chinese, Buginese, and Javans. The town is at the n.w. end of Tandjong Pinang, 54° 4' n. lat., and 104° 26' 30" e. long., in a beautiful bay where there is safe anchorage: pop. 10,000.—See *Journal of the Ind. Archip.*, I.; Crawford's *Descriptive Dict.*; *De Residentie Riouw*, by De Hollander; and the official reports on the Dutch E. Indies.

RIP, v. *rĭp* [Icel. *hrifa*, to scrape, to snatch: Dan. *oprippe*, to rip up: Dut. *roopen*; Ger. *raufen*, to pluck: AS. *rypan*, to spoil]: to separate the parts of a thing by cutting or tearing; to cut or tear open or off; to tear up for disclosure or alteration: N. a place torn: a rent caused by part of a seam giving way. RIP'ING, imp. RIPPED, pp. *rĭpt*. RIP'PER, n. *-pér*, one who rips. TO RIP UP OLD SORES, to bring to recollection old grievances and differences.

RIP, n. *rĭp* [Low Ger. *rif* or *rift*; Ger. *gerippe*, a skeleton]: anything worthless or thoroughly vicious; a *rip* of a horse is a thin worn-out horse; a morally ill-conditioned person.

RIPARIAN, a. *rĭ-pā'rĭ-an* [L. *ripāriūs*, that frequents the banks of rivers—from *rĭpa*, the bank of a stream]: pert. to the bank of a stream. RIPARIAN RIGHTS: see RIVER.

RIPE, n. *rĭp* [Dut. *rijp*; Ger. *reif*, ripe]: brought to perfection or maturity; mature; mellow; fit for use; ready; prepared: V. in *OE.*, to ripen; to mature; to make ripe. RIPE'LY, ad. *-lĭ*. RIPE'NESS, n. *-nēs*, full growth; maturity; fitness for use; complete suppuration, as of an abscess. RIPEN, v. *rĭ'pn*, to become ripe; to mature; to grow ripe, as grain or fruit; to bring to completeness or perfection. RI'PENING, imp. RI'PENED, pp. *-pnd*.—SYN. of 'ripe': mature; complete: finished; mellow.

RIPE, v. *rĭp* [Icel. *rifa*; Dan. *oprippe*, to rip up]: in *Scot.* and *OE.*, to rake; to probe; to search or examine; to investigate. RI'PING, imp. RIPPED, pp. *rĭpt*.

RIPHEAN, a. *rĭ-fē'an*: a term formerly applied to certain mountains in the north of Asia.

RIPIDOLITE, n. *rĭ-pĭd'ō-lĭt* [Gr. *rhapis* or *rhipida*, a fan; *lithos*, a stone]: a composition of an olive-green color, occurring in tabular crystals, often united in comb-like or fan-like groups.

RIPIENO, a. *rĭp'ē-ā'nō* [It.—from L. *re*, again; *plēnus*, full]: in *music*, a term meaning 'full.'

RIPLEY—RIPON.

RIPLEY, *rĭp'ŭ*, ELEAZAR WHEELLOCK: soldier: 1782, Apr. 15—1839, Mar. 2; b. Hanover, N. H.; son of the Rev. Dr. Sylvanus R. He graduated from Dartmouth College 1800, became a lawyer in Portland, Me., was a member of the Mass. legislature 1810 and of the state senate two years later. He served through the war of 1812; entering as lieut., rising to the rank of brig.gen., and receiving the brevet of maj.gen.; and rendered distinguished service at the battles of Chippewa and Niagara, and the defense of Fort Erie, for which congress presented him with a gold medal. He resigned his commission 1820, became a lawyer in La., served in the state senate, and was member of congress 1834 till his death, which resulted from wounds received in the war of 1812. He died at his home in Louisiana.

RIPLEY, GEORGE, LL.D.: scholar, critic, and editor: 1802, Oct. 3—1880, July 4; b. Greenfield, Mass.; son of a justice and legislator; his mother was related to Benjamin Franklin. He graduated at Harvard 1823, and, after a divinity course, was first pastor of a Unitarian church on Purchase and Pearl sts., Boston. He was a leader of the so-called transcendentalists, and one of the first editors of the *Dial*. In 1841 he gave himself to the Brook Farm socialistic experiment, teaching philosophy and doing manual work, till the failure of the enterprise 1847. Afterward, he was engaged in journalistic work, especially as literary editor of the *Tribune*. His critiques were noted for learning, penetration, and geniality. Besides very many reviews and essays in monthlies and quarterlies, he edited a series of volumes entitled *Foreign Standard Literature*, beginning 1838. In 1857, with Charles A. Dana, he undertook the editorship of the *New American Cyclopedia*, finished 1863, and revised 1873-76 as the *Amer. Cyc.* His life by O. B. Frothingham was published in the *Amer. Men of Letters* (1882). He died in New York.

RIPON, *rĭp'on*: city, in Fond du Lac co., Wis.; on the outlet of Green Lake, and on the Chicago Milwaukee and St. Paul and the Chicago and Northwestern railroads; 20 m. w. by n. of Fond du Lac, 86 m. n.w. of Milwaukee. It is in an agricultural region, has excellent water-power, ships large quantities of wool and livestock, and manufactures carriages, wagons, and flour. It is the seat of Ripon College (Congl.), and has 10 churches, several public schools and halls, 2 national banks (cap. \$110,000), and 2 weekly and 2 monthly periodicals. Pop. (1880) 3,117; (1890) 3,358; (1900) 3,818.

RIP'ON: municipal borough, in the w. Riding of Yorkshire, England, 23 m. n.w. of York. The market-place, to which the four principal streets lead, is spacious, surrounded by good houses and shops, and has in its centre an obelisk 90 ft. high. R. is a bishop's see. The cathedral, founded 1109-14 is cruciform, surmounted with two uniform towers, 110 ft. high at the w. end, also by a centre tower: it is esteemed one of the best

RIPPLE—RISE.

proportioned churches in the kingdom. Trinity Church, built 1826, is a fine cruciform edifice in Early English. There are other places of worship, two hospitals, and important schools. Principal branches of industry are machine-making, tanning, and malting. About two m. from R. are the famous ruins of Fountains Abbey, adjoining the grounds of Studley Royal, seat of the Marquis of Ripon.—Pop. (1871) 6,806; (1891) 7,512.

RIPPLE, v. *řip'pl* [Fris. *rebbel*; Dan. *ribbel*, a frame with iron teeth, through which thrashed straw is drawn, to save any remnants of corn: Ger. *riffel*, a ripple; *riffeln*, to strip flax]: to pluck off the seed-capsules of flax by drawing the straw through a fixed iron comb: N. a kind of comb or frame with long wire teeth, through which flax-plants are passed, to remove the capsules containing the seeds. **RIPPLE-GRASS**, a species of plantain.

RIPPLE, n. *řip'pl* [AS. *hrympelle*; O. Dut. *rimpel*, a wrinkle: OHG. *hrimfan*, to wrinkle]: the little curling waves on the surface of water: V. to ruffle the surface of water; to curl on the surface of water. **RIP'PLING**, imp.: N. the breaking of ripples on the shore, or the noise of it. **RIP'PLED**, pp. *-pld*. **RIP'PLINGLY**, ad. *-pling-ly*. **RIPPLE-MARKS**, marks made on the sand of a sea-beach by the receding tide: in *geol.*, similar marks have been observed on the surface of sandstones of all ages. They are deemed generally as indicating that the deposition of the bed on which they occur took place on a sea-beach, or under water not more than ten ft. deep. Recent ripple-marks have, however, been observed at a depth of 60 ft., and there is reason to believe that mud and sand may be disturbed at much greater depths by currents of water. Loose sand also may be driven by the wind into ripple-waves, that cannot be distinguished from those produced by the receding tide.

RIPRAP, n. *řip'răp*: in *civil engin.*, a foundation of stones thrown together without order, as in deep water or on a soft bottom.

RIPT, v. *řipt*: another spelling of **RIPPED**: see **RIP 1**.

RISE, v. *řiz* [Icel. *risa*; Goth. *urrisan*; AS. *arisan*, to rise up: Dut. *riisen*, to rise up: OHG. *risan*, to move up]: to ascend; to move upward; to get up, as from a recumbent or sitting position; to get up from rest or repose; to spring or grow; to begin to appear or to exist; to increase; to swell in quantity; to advance, as in price; to gain elevation in position; to break forth; to be elevated above the surface; to ascend, as ground; to have its source in; to commence; to make insurrection; to make a hostile attack; to be roused; to close a sitting, as a court of justice or parliament; in *Scrip.*, to be revived from death: N. act of rising; ascent; elevation; first appearance, as of the sun in the east; source; beginning; increase; advance, as in value, in rank, or in prosperity. **RI'SING**, imp.: **ADJ.** mounting; advancing; appearing above the horizon; increasing, as

RISHI—RISING IN THE AIR.

in wealth or position; reviving from death: in *her.*, applied to a bird represented as opening his wings about to take flight: N. act of getting up from any recumbent posture; act of ascending; a tumor; ascent; appearance of a star above the horizon; act of reviving from the dead; an insurrection against government; sedition; the close of the sitting of a court. **RISING OF PARLIAMENT**, prorogation of parliament. **ROSE**, pt. *rōz*, did rise. **RISEN**, pp. *rīz'n*. **RISER**, n. *rīz'ēr*, one who rises.—**SYN.** of 'rise, v.': to get up; spring; grow up; ascend; mount; climb; scale: move upward; break out; be excited; be produced; appear; begin;—of 'rising, n.': appearance; tumult; insurrection; resurrection; sedition; swelling.

RISHI, *rīsh'ī* [from obsolete Sanskrit *r'ish*, see, kindred with *dr's'*-, *δερκ'*]: title given to the poets of the Vedic hymns, as they were supposed to have 'seen,' or, in other words, received, the Vedic hymns from the Deity through the sense of sight. The *R'ishis* were therefore the oldest poets of India, and the word *R.* itself becomes thus even identified with Vedic poetry. Later, however, the title *R.* was given to renowned authors, though not considered as inspired by a deity; e.g., to the authors of the Vedic Kalpa.—Compare Goldstücker, *Pân'ini*, etc., p. 64, ff.

RISIBLE, a. *rīz'ī-bl* [F. *risible*—from L. *risibilis*, laughable—from *rīsus* laughter; *ridēō*, I laugh: Sp. *risible*; It. *risibile*, risible]: having the faculty or power of laughing; capable of exciting laughter; prone to laugh. **RIS'IBLY**, ad. *-blī*. **RIS'IBIL'ITY**, n. *-bīl'ī-tī*, the quality of being risible; proneness to laugh.—**SYN.** of 'risible': amusing; ridiculous; ludicrous; laughable.

RISING IN THE AIR, or **LEVITATION**: act ascribed according to a belief (prevalent in the middle ages) that the bodies of holy persons were sometimes lifted up and suspended in the air while those persons were in a religious ecstasy. Calmet states in his work on Apparitions that this phenomenon might be produced by the fervor of the Holy Spirit; by the ministry of good angels; or by a miraculous favor of God. Numerous instances are recorded in the *Acta Sanctorum*. It is reported that St. Philip of Neri, in his religious ecstasies, was elevated in the air, sometimes almost to the ceiling of his room, and this quite involuntarily; he tried in vain to hide it from the knowledge of those present, for fear of attracting their admiration. St. Ignatius de Loyola, it is declared, was sometimes raised up from the ground to the height of two ft., while his body shone like light. St. Robert de Palentin also is said to have risen from the ground sometimes to the height of a foot and a half, to the astonishment of his disciples and assistants. In the life of St. Dunstan it is stated that, a little time before his death, as he was going upstairs to his apartment, accompanied by several persons, he was observed to rise from the ground; and as all present were astonished

RISK—RISTORI.

at the circumstance, he took occasion to speak of his approaching death. In a recent biography of Girolamo Savonarola, it is also stated that while that martyr was in prison, shortly before his execution, he was observed once, while in prayer, raised from the ground, and was seen distinctly suspended in the air for a short period. These relations account for the frequency with which representations of saints are exhibited in an aërial position in mediæval paintings and works of art. This belief falls in with one of the alleged phenomena of modern Spiritism (q.v.).

RISK, n. *risk* [Sp. *risco*, a bare steep rock: F. *risque*; It. *risico*; Sp. *riesgo*, risk: comp. Bret. *riska*, to slip or slide]: exposure to injury or loss; danger; hazard (see **WARRANTY**: **CARRIERS**: **INSURANCE**): V. to expose to the chance of injury or loss; to hazard; to peril. **RISK'ING**, imp. **RISKED**, pp. *riskt*. **RISK'ER**, n. *-ér*, one who risks. **RISK'FUL**, a. *-fûl*, or **RISK'Y**, a. *-ÿ*, attended with danger; hazardous. **TO RUN A RISK**, to incur hazard; to encounter danger. **TO TAKE A RISK**, to assume danger; to insure.—**SYN.** of 'risk, n.': hazard; jeopardy; danger; peril; exposure; venture; liability.

RISOTTO, *rē-zōt'tō*: Italian dish, consisting chiefly of rice. Onions are shredded into a frying-pan with plenty of butter, and they are fried together until the onions become very brown, and communicate their color to the butter. The butter is then run off, and to this is added some rich broth, slightly colored with saffron, and the whole is thickened with well boiled rice, and served up instead of soup, at the commencement of a dinner.

RISSOLE, n. *ris'sōl* [F. *rissoler*, to fry meat till it is brown: Dan. *riste*, to fry]: culinary preparation used as an *entrée*. It consists of meat or fish of any kind finely minced and made into small forms, which are then coated with a very thin crust either of pastry or of bread-crumbs mixed with yolk of egg, and fried.

RISTORI, *rēs-tō'rē*, **ADELAIDE**: famous Italian tragic actress: was born in 1821 at Cividale in Frioul. Her parents were strolling players, and she almost began life in the theatre. At the age of 14, she played in *Francesca da Rimini*, and in a few years became the leading Italian actress. Her talents, her beauty, and her grace made her a universal favorite. In 1847, her marriage with Marquis Capranica del Grillo (died 1861) temporarily interrupted her dramatic career; but after two years, she returned to the stage, and appeared at Rome 1849 in Alfieri's tragedy of *Myrrha*. But the French attack on the city caused her to desert the theatre for the hospital, where she employed herself assiduously in nursing the wounded. After having acted in 1850 and succeeding years at Rome and Turin in various characters of Alfieri with immense applause, she presented herself before a French audience 1855, when Rachel was in the height of her fame, a proceeding considered as a challenge by the first Italian actress to the first French ac-

tress. Even at Paris she obtained a triumph, her genius creating irrepressible enthusiasm. Without the extreme sympathetic sensibility of Rachel, she surpassed her in vivacity and expansion. She appeared with great success in England, the United States, etc.

RISUS, n. *rîsûs* [L. *rîsus*, laughter: It. *riso*; F. *ris*, laughter]: a laugh; laughter. RISUS SARDONICUS, *sâr-dôn'î-kûs*, in *med.*, the peculiarly horrible expression of countenance observed in cases of tetanus, so called because supposed to be produced by the eating of a species of ranunculus growing in *Sardinia*.

RITARDANDO, a. *rê-târ-dăn'dô* [It.]: in *mus.*, a direction to play and sing slower and slower.

RITCHIE, *rîch'î*, ANNA CORA (MOWATT): 1819–1870, July 28; b. Bordeaux, France; dau. of Samuel G. Ogden, of New York. Her childhood was passed in France, but in early youth she removed to New York, and soon afterward eloped with a lawyer named James Mowatt. She gave much attention to private theatricals, and when her husband lost his property she gave public readings. She appeared as an actress 1845, June, taking the part of Pauline in *The Lady of Lyons*. She also wrote plays entitled *Fashion*, and *Armand*, in which she appeared in England and the United States. On the death of her husband 1851, she returned to this country, and 1854 married William F. Ritchie. From 1860 till her death she resided in Europe. Among her publications were *Autobiography of an Actress* (1855); *Twin Roses* (1857); *Italian Life and Legends* (1870). She died near London.

RITCHIE, THOMAS: journalist: 1778, Nov. 5—1854, July 12; b. Tappahannock, Va. He studied medicine, taught school in Fredericksburg, Va., and 1804 became editor and publisher of the Richmond *Enquirer*, which he controlled for 40 years, and made one of the most influential democratic papers in the country. This paper he transferred to his sons 1845, in order to edit the *Union*, an administration organ in Washington, to which service he was called by President Polk, and from which he retired 1849. He died at Richmond.

RITE, n. *rît* [F. *rit* or *rite*, a rite—from L. *rîtus*, a religious usage or ceremony: It. *rito*]: a formal act of religious worship; external observance; form; ceremony. RITUAL, a. *rît'û-al*, pert. to rites, or prescribed by them: N. a book of rites or services (see below). RIT'UALLY, ad. *-lî*. RIT'UALISM, n. *-îzm*, observance of prescribed forms in religious services; excessive or prominent observance of forms (see below): sometimes, in controversy, opposed to *spiritual worship*. RIT'UALIST, n. *-îst*, one who makes much of ritual, or external forms in worship; one unduly devoted to mere external forms in worship. RIT'UALISTS, n. plu. *-îsts*, extreme party in the Chh. of Eng. which seeks both in doctrine and ritual to assimilate it to the Rom. Cath. Chh.: see RITUALISM, below.—SYN. of 'rite': ceremony; form; observance; ordinance.

RITE--RITES.

RITE, *rīt*. external sign or action employed in religious use, and designed either to express or to excite a corresponding internal religious feeling; e.g., the uplifting or outstretching the hands in prayer, the imposition of hands in blessing, etc. The ancient Jewish religion abounded with rites and ceremonies, and through their excessive multiplication in the religions of the Gentiles, religion degenerated almost entirely into outward form. A marked distinction in this respect is drawn by the Lord Jesus (John iv. 23) between the old and the new law, which one class of Christians have interpreted as a condemnation of all external ceremonial, while even those who contend for retention of ceremonies in Christian worship require that their use should always be accompanied and elevated by the corresponding internal spirit. All forms of religion use rites to some extent in worship: the debate is as to the proper limit in their use. The great ground of difference in the Puritan controversy in England and in the corresponding disputes in continental churches was the lawfulness of certain ceremonies. See **GENUFLEXION: PURITAN**.

The name rite is sometimes used to signify the aggregate of all the ceremonies used in a particular religious office, as the 'rite' of baptism or of the Eucharist. In a still wider sense, it is used of the whole body of distinctive ceremonial, including the liturgy employed by a particular community of Christians; e.g., the 'Roman rite,' the 'Greek rite,' the 'Syrian rite,' the 'Armenian rite,' the 'Coptic' or the 'Slavonic rite.'

RITENUTO, *rē-lēn-ō'to* [Ital. kept back]: in *music*, a term implying that the speed of the movement is to be diminished.

RITES, *rīts*, **CONGREGATION OF** (*Congregatio Sacrorum Rituum*): in the Roman Chh., a standing committee of the College of Cardinals. Its duty is to maintain throughout all the churches uniformity in the ceremonial observances employed in solemn public worship—especially in the Mass. All questions of ritual or liturgy that arise are decided by the Congregation of Rites. But this Congregation does not require the immemorial usage of certain churches, or the ancient liturgies of certain communions to be conformed to the standard of the Roman Chh. Another office of the Congregation of R. is the beatification and canonization of saints.

RITORNELLE—RITSCHL.

RITORNELLE, n. *rīt'ōr-něl*, or **RITORNELLO**, n. *rīt'ōr-něl'lō* [F. *ritournelle*; It. *ritornello*, dim. of *ritorno*, return; *ritornare*, to return (see RETURN)]: in *music*, in its original sense, a short repetition like that of an echo, or a repetition of the closing part of a song by one or more instruments. The same term has, by later usage, been applied to all symphonies played before the voices begin which prelude or introduce a song; as well as the symphonies between the members or periods of a song.

RITSCHL, *rītsh'l*, **ALBRECHT**, D.D., LL.D., PH.D.: German theologian: b. 1822; nephew of Frederic William R., philologist. In 1855 he was appointed curator of the library and museum of the Univ. of Bonn; 1860 prof. of theol.; and 1864 prof. in the Univ. of Göttingen. Besides many papers on religious questions, he has published *The Gospel of Marcion and the Gospel of St. Luke* (1846)—Marcion admitting only the latter, and changing it. In this work, R. followed the critical method of Bauer; but in 1850 his *Origin of the Ancient Catholic Church* opposed the principles of the school that he had favored. Other works are: *The Relation of the Confession to the Church* (1854); *Critical History of the Doctrine of Justification and Reconciliation* (English translation, Edinburgh 1872); *Concerning Conscience* (1876); *History of Pietism* (1880–86, vol. I., in the Ref. Church—II. III., in the Lutheran); *Instruction in the Christian Religion*; and *Theology and Metaphysics*. His theology is based on a theory of cognition that recognizes phenomena only; and to this his rejection of traditional doctrine is traced in Stahlin's *Kant, Lotze, and Ritschl*, translated by D. W. Simon (1889).

RITSCHL, FRIEDRICH WILHELM: one of the first (perhaps the very first) classical philologists of modern times: 1806, Apr. 6—1876; b. Grossvargula in Thuringia. He studied at Leipzig under Hermann, and 1826–29 at Halle. In 1832, he was called to Breslau as extraordinary prof.; two years afterward he became ordinary prof.; and 1839 accepted an invitation to Bonn as prof. of classical literature and rhetoric. The Prussian govt. conferred on him the rank of privy-councillor 1856. His first literary works were in reference to the Greek grammarians, as the edition of Thomas Magister (Halle 1832), the acute and penetrating treatise, *De Oro et Orione* (Bresl. 1834), and the richly elucidatory *Die Alexandrin. Bibliotheken und die Sammlung der Homerischen Gedichte durch Pisistratus* (Bresl. 1838); but by far his greatest work is his edition of Plautus (Bonn, 1848–53), executed with the richest critical apparatus, and accompanied by a comprehensive *prolegomena* on the Plautinian metres. The work secured for him a splendid reputation. Among the numerous productions of R. preparatory to this *chef-d'œuvre*, most important is *Parerga Plautina et Terentiana* (Leip. 1845). Subsequently his literary activity turned to the systematic treatment of Latin inscriptions, with the view of illustrating the history of

RITSCHLIANISM.

the Latin language. By his numerous works in this department (published 1851-62), R. has thrown more light on the successive phases of the language than any other individual. Besides these works, R. contributed many learned dissertations to the programs of the Univ. of Bonn, in *Transactions* of the Archæological Institute of Rome, and in the *Rheinisches Museum für Philologie*. On the 25th anniversary of his appointment to Bonn, there began to be published *Symbola Philologorum Bonnensium in Honorem Frid. Ritscheli* (1864-67). In 1867, R., 30 of whose pupils were then professors in German universities, was appointed foreign associate of the French Acad. of Inscriptions and Belles Lettres.

RITSCHLIANISM, *rĭtsh'li-ăn-ĭsm*: system of Albrecht Ritschl (q.v.), German theologian. Ritschl's distinctive theological views are most fully presented in his great work on the Christian doctrine of justification and reconciliation. In philosophy he is of the school of Lotze (q.v.), holding a system of subjective idealism. He doubts the possibility of demonstrating God to the speculative intellect, but believes that God is revealed to man through the religious consciousness. God is to be thought of chiefly as love, even his justice and righteousness being substantially identical with his grace. Metaphysical speculations in regard to God's existence as absolute, unconditioned, and self-determining, or in regard to a distinction and unity of three persons in the Godhead, or of two natures, divine and human, in the person of Christ, are to be disregarded as valueless and unprofitable, Christ is held to be divine, holding a unique relation to the church founded by his earthly life and work. The atonement secures reconciliation of man with God and freedom from the sense of guilt, not by Christ's vicarious suffering of the penalty due to sinful men, but by his perfect fulfilment of the divine will, and his patient, loving, and unfaltering endurance even unto death. The Christian's justification is witnessed by his possessing the spirit and living the life of Christ—a life of trust in the divine providence, of humility, of patient endurance of suffering or trial, of prayerfulness, and of faithful doing of the will of God, including faithfulness to one's calling as part of the divine will and contributing to build up the kingdom of God. Great importance is attached to the church as the community in which alone men can have reconciliation with God and freedom from the sense of guilt, can be enabled to act from motives of love, and can realize that human and divine fellowship of perfect love which is the kingdom of God. The Ritschlian system gives great prominence to the practical, ethical, and social aspects of Christianity. Its author has been termed 'an eclectic mediating theologian,' as standing between the rationalistic and orthodox parties within the church. The system has had a wide influence over a large school of Christian thinkers, teachers, and preachers in Germany.

RITTENHOUSE—RITTER.

RITTENHOUSE, *rit'tn-howss*, DAVID, LL.D. : mechanician, mathematician, and astronomer : 1732, Apr. 8—1796, June 26; b. Roxborough, Penn.; son of a Mennonite preacher who was the first paper-maker in this country. At 17 yrs. of age he made a wooden clock, and, two years later, became a maker of clocks and mathematical instruments in Norriton, achieving great reputation. A constant student, he independently discovered the method of fluxions, and educated himself in the ancient languages. He invented a compensating pendulum and a metallic thermometer, and made improved orreries, which were sold at \$1,500—\$2,000 to institutions. His services were in requisition to determine state boundaries accurately. In 1769, he made even better observations on the transit of Venus than the royal astronomers of Europe; and, the same year, studied the transit of Mercury. The following year, he determined the orbit of a comet. During the revolutionary war, he was pres. of a committee of safety, and his engineering and inventive genius was variously exercised. In 1776, he was member of the Penn. assembly and constitutional convention; 1777–89, state treasurer; 1779–82, prof. of astron. in the Univ. of Penn.; 1792, director of the mint. He succeeded Franklin, 1790, as pres. of the Amer. Philos. Soc., to whose vols. he contributed many papers. His *Oration on Astron.* was pub. 1775. James Renwick wrote his life, in Sparks's *Amer. Biog.* He died in Philadelphia.

RITTER, *rit'tér*, HEINRICH: German philosopher: 1791–1869; b. Zerbst. He studied theology at Halle, Göttingen, and Berlin, 1811–15, and in 1824 was created prof. extraordinarius at Berlin Univ. In 1835, he accepted a call to the univ. at Kiel, and went thence 1837 to Göttingen. R. owes his literary fame especially to his profound works on the history of philosophy, giving analyses of leading ancient and modern systems, and tracing their relations to one another. He was not a partisan of any philosophical school, but a critic of all.

RITTER, KARL: illustrious geographer: 1779, Aug. 7—1859, Sep. 28; b. Quedlinburg, Prussia. He studied in Halle, was nominated 1820 prof. extraordinarius of geog. at Berlin Univ., became subsequently member of the Acad., and director of studies of the Milit. School. With R., as the founder of general comparative geography, begins a new epoch in geographical science. His chief works are: *Die Erdkunde im Verhältnisse zur Natur und Geschichte des Menschen* (Geography in its Relation to Nature and the History of Men), 17 vols. Berl. 1822–54: in 4 parts, 1. Introduction, and E. Asia, 5 vols., containing Middle Asia, High Asia, Siberia, China, and India, vols. II.—VI.; 2. W. Asia, 5 vols. (VII.—XI.); 3. Arabia (XII.—XIII.); 4. The Sinai Peninsula, Palestine, Syria (XIV.—XVII.), with four indexes, and an Atlas of Asia. Introduction to an Essay on a more Scientific Treatment of Geography (Berl. 1852); *Europa, ein geographisch., historisch., statistisches Gemälde* (Europe, a Geo-

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graphical, Historical, Statistical Picture), 2 vols. Frankf. 1807; *Die Stupas, oder die architect. Monumente, etc.* (The Stupas, or the Architectural Monuments on the Indo-Bactrian Royal Road, and the Colossus of Bamyan), Berl. 1838. Many of his antiquarian and historico-antiquarian researches are in the *Monatsberichten* of the Berlin Geog. Soc. and in the *Zeitschrift für allgemeine Erdkunde, etc.*

RITUAL: see under RITE.

RITUAL: name of one of the service-books of the Roman Church, containing the prayers and order of ceremonial in the administration of certain sacraments and other offices of the church. The ceremonial of the offices of the Roman Church administered by bishops is in the books entitled *Pontificale* and *Ceremoniale Episcoporum*, while the priestly offices are detailed in the Ritual. In its present form, the R. dates from the Council of Trent, which directed a revision of numerous and varying rituals then in existence. Paul V., 1614, published an authoritative edition, frequently reprinted, and of which a further revision was issued by Benedict XIV. Besides the Roman R., there are many diocesan rituals, some of which are of much historical interest. In the Greek Church, as in the other eastern communions, the R. forms part of the general collection (which contains also the Eucharistic service) entitled *Euchologion*. In the Anglican and the Prot. Episc. Church, also, the *Book of Common Prayer* may be said to contain the R. The most approved commentary on the Roman R. is that of Barrufaldo (2 vols. Florence 1847).

RITUALISM.

RITUALISM: popular but inaccurate name for the remarkable increase of ceremonial in the Church of England since 1863. In a general sense it denotes, in the United States and in Britain, the theory of the church which demands a certain high degree of symbolism for proper conduct of worship or for adequate setting forth of Christian doctrine; also in loose popular usage it denotes any observance of elaborate ritual in divine service. It may be considered a development of Tractarianism, though it was not contemplated by the authors of that movement, whose aim was rather to disseminate doctrines than to introduce ritual changes. Its collateral causes may be said to be: (1) The great advance of æsthetic taste, and the increased cultivation of the fine arts in the service of religion. (2) The extended study by the clergy of ancient liturgies, and the connection discovered to exist between them and the offices of the English Church, therefore also with those of the Prot. Episc. Church in this country. With the spread of High Church principles, certain changes in the mode of conducting divine service had been introduced by the clergy, which, though unpopular at first, were widely adopted, and to a certain point, had received the sanction of the law. But till about 1863, the restored church with low and open benches—the separated chancel—the altar-table with coverings of different color according to the ecclesiastical seasons, and candlesticks, and a cross upon or over it—choral services, and weekly celebration of the communion, were all that had been attempted. To these comparatively small alterations, important additions have since been made—viz. (1) Special vestments at celebration of the holy communion, and at certain other times; viz., for the celebrant, an alb and stoles, of different color, and chasuble; for the assisting ministers, albs with tunicles, according to the seasons: at other times, a cope is worn instead of a chasuble. (2) Lighted candles on the altar at holy communion. (3) Incense burned either in a ‘thurible’ or in a standing vessel. (4) The mixing of water with wine for the communion. (5) The use of wafer-bread. (6) Elevation of the elements either during or after consecration. (7) The attendance of non-communicants at the holy communion. (8) Processions with crosses, banners, and vested attendants.

These innovations are defended by their promoters on the grounds of (a) Law, (b) Doctrine, (c) Expediency.

(a) The rubric at the end of the calendar in the Anglican Book of Common Prayer enacts ‘that such ornaments of the church and of the ministers thereof at all times of their ministration shall be retained and be in use as were in this Church of England by the authority of parliament in the second year of the reign of King Edward VI.’ The judicial committee of the privy Council in the case of *Westerton v. Liddell* (1857), ruled that ‘ornaments’ here means, ‘all articles used in divine service;’ that the words ‘by authority of parliament,’

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etc., refer to the first Prayer-book put forth in that reign (1549); and that 'the meaning of the rubric, as of the previous statute of Elizabeth, the language of which it adopts, is, that the same dresses, utensils, and articles which were used under the first Prayer-book of Edward VI. may still be used.' Now, the first Prayer-book of Edward VI. prescribes that at the time of the communion 'the priest that shall execute the holy ministry shall put on him a white alb plain with a vestment, i.e., a chasuble, or cope;' and the assistants 'likewise the vestures appointed for their ministry, that is to say, albs with tunicles:' it is therefore inferred that the above are the only legal vestments in which the holy communion should be celebrated. To this it is objected (1) That the word 'retained' can refer only to such vestures as were in use till the time of the last publication of the rubric—viz., the surplice in parish churches, and copes in cathedrals. (2) That the rubric, when first inserted under Elizabeth, was limited by the Injunctions and Advertisements of that reign, which aimed only at the restoration of the surplice. (3) That whatever be the intention of the rubric, it has been so long obsolete that it is absurd to revive it. It is rejoined (1) That the word 'retained' must have the same meaning that it had in the rubric of Elizabeth, in which it first occurs. (2) That the Injunctions and Advertisements were not of supreme authority, and were intended only to help toward restoring a decent uniformity in divine worship. (3) That the fact that a law has become obsolete does not invalidate its force. The same reference of the ornaments rubric to the second year of Edward VI. is held to authorize other accessories known to have been in use at that time, though not specified in the first Prayer-book—e.g., lighted candles, incense, etc. And on the principle that the Reformed Church was legally identical with that before the Reformation—which the 30th canon of 1603 is cited as maintaining—it is further contended that all ancient laws and usages are still in force, except where directly or implicitly abrogated by subsequent enactment. And as the chief ritual authority before the Reformation was the liturgy of Sarum (the Sarum 'use' referred to in the preface to the present Prayer-book), it is to that standard, as far as possible, that the more advanced Ritualists desire to conform.

(b) The *doctrinal* grounds of defense are expressed in the following statements: (1) The Eucharist (as the Lord's Supper was anciently called) is the special institution of Christ, the single rite of continual observance which He enjoined on His disciples, and the chief act of Christian worship. It is therefore right to exalt and dignify it above all other services, and mark it as standing on different and higher ground than any other institution. (2) The Eucharist, according to the universal belief of the ancient church, is to be regarded as a sacrifice, *commemorative*, as the Jewish sacrifices were

anticipatory, of the death of Christ—not as iterating or repeating it (which idea alone the 31st article is held to condemn), but as a solemn pleading and offering of it before God, as Christ Himself offers it in heaven. Hence the position of the celebrant in front of the altar, and the use of a sacrificial vestment, as the chasuble is held to be. (3) In the Eucharist, there is a real presence of Christ, which, though spiritual, is *objective*, i.e., not dependent on the receiver, but as a result of consecration, and to a certain extent *local*. (The growth of this belief is marked by the change made in a later edition of Keble's *Christian Year* of the words, '*not in the hands,*' in a poem on the Eucharist, to, '*as in the hands.*') Hence distinct acts of adoration, addressed not, as is explained, to the elements, but to the Divine Presence, of which they are the vehicles and signs.

(c) On the ground of *expediency* also, it is contended: (1) That experience proves that the only way of attracting and gaining a hold on the vast uneducated masses of great towns and cities is by a worship addressed not merely to the ear, but to the eye. 'Ritualism,' says one of its defenders, 'is the *object lesson* of religion.' Services conducted in grand and beautiful buildings—brilliantly lighted—with splendid vestments, touching music, costly decorations, and every outward token of reverence and solemnity, will impress the young and the poor as nothing else can do. Those churches in London where advanced ritual prevails are said to be thronged with worshippers—mainly of the lower classes, and in great proportion of men—when others are almost empty. (2) A further argument, under this head, is connected with the desire, which has grown up of late years among the High Church party, for the restoration of the visible unity of Christendom, and specially the renewal of communion between the Church of England and both the Eastern and the rest of the Western Church; and with this view, it has become an avowed object to assimilate the Anglican service as much as possible to that of other 'Catholic' churches.

It remains to notice briefly the effect of these innovations. It is a remarkable index of the change of popular feeling within recent years, that such bold and startling changes, altering the whole character of the Anglican service, should, by a large number of people, be not only tolerated, but approved. In 1859, the attempt of the rector of St. George's-in-the-East, London, to introduce Eucharistic vestments, led to riots which convulsed East London. In 1867, in about 12 churches of the metropolis—and in several country towns and villages—a far more advanced ritual, with vestments, altar-lights, and other ceremonies, regularly attracted an eager throng, not of spectators only, but of worshippers. And the spread of the movement may be judged by the statement, which appears authorized by facts, that within a few months after the first Report of the Royal Commissioners on Ritual, the vestments were

introduced in more than 30 churches. On the other hand, among the 'Protestant' members of the church, and those of other denominations, the movement provoked strong opposition. Most of the bishops have, directly or indirectly, expressed their disapprobation; the press, except two or three journals, which were its strenuous advocates, was almost unanimous in denouncing it; the more moderate members of the High Church party discourage it; and active efforts have been made to arrest it by legislative interference. In the Lower House of Convocation, on motion of the Dean of Ely, a committee was appointed to consider the subject, which, after careful examination, reported, 1866, June, that vestments and altar-lights, legal or not, should not be introduced without sanction of the bishop; that the censuring of persons and things, elevation after consecration, wafer-bread, and presence of non-communicants (except in special cases) were to be discouraged. In deference to this opinion, the censuring of persons and things has been in some churches given up. In the beginning of 1866, an opinion was obtained, at the instance of some of the bishops, from five eminent counsel, against the legality of all ritualistic innovations (the main grounds of which opinion are given in the *objections* above stated). In reply to this, another opinion was obtained, by the council of the English Church Union, from nine leading counsel—some of whom have since been raised to the bench—all of whom advise in favor of the legality of vestments, all but two in favor of altar-lights, and all against incense; on the mixed chalice and wafer-bread, they are nearly equally divided.

In the session of 1867, the Earl of Shaftesbury introduced a bill—founded on the 58th canon of 1603—to limit ecclesiastical vestments to the ordinary surplice and hood, in favor of which more than 600 petitions were presented; while one against it, presented by Lord Redesdale, was signed by more than 9,000 clergy and lay communicants. (An earlier memorial, to the Abp. of Canterbury, against any change in the existing law, was signed by more than 40,000 communicant members of the church.) This bill was withdrawn on the appointment by the govt. of a commission 'to inquire into the Rubrics, Orders, and Directions for regulating the course and conduct of Public Worship, etc., according to the use of the United Church of England and Ireland.' The commissioners included the Abps. of Canterbury and Armagh, and the Bps. of London, St. Davids, Oxford, and Gloucester. They published a report to the effect that 'it is expedient to restrain, in the public services of the church, all variations in respect of vesture from that which has long been the established usage of the said church; and that this may be best secured by providing aggrieved parishioners with an easy and effectual process for complaint and redress.' The evidence appended to the report supplies much information as to the various practices prevailing, and the widely

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different views entertained. The general conclusions appear to be that vestments, and probably altar-lights and the mixed chalice, are legal; that an ornate ritual is useful among some classes, and might, with certain safeguards, be allowed; that absolute uniformity is impossible, but that the law might be obeyed much more generally than it is; that the maintenance of the present law, with a wide and liberal interpretation, but limited as a maximum to the ritual of the 2d year of Edward VI., with some recognized ecclesiastical authority to restrain unauthorized variations, would be most for the welfare of the church. The report produced no restraint on the progress of Ritualism, and 1873, May, 60,000 persons of standing and influence presented an address to the two abps. requesting them to adopt means for checking the growth of ritualistic practices. 1874, Apr., a bill for this purpose was introduced in the house of lords by the Abp. of Canterbury, entitled The Public Worship Regulation Act. It was adopted by the govt., but was opposed in the house of commons by Mr. Gladstone in a series of six resolutions; and notwithstanding considerable ecclesiastical agitation, it became law in August. Its main provision is the appointment of a judge for the trial of ritualistic cases. A complaint against the use of vestments, ornaments, and rites and ceremonies, or the omission of such as are ordained in the Book of Common Prayer, in the churches or burial-grounds of the Church of England, may be presented to the bishop of the diocese by an archdeacon or churchwarden, or by three parishioners, members of the church of full age, and a year's residence in the parish. In the event of the parties not submitting to the directions of the bishop, he shall forward the case for trial by the judge, from whose decision an appeal lies to the privy council.—See TRACTARIANISM: VESTMENTS.

RIVAGE, n. *rīv'āj* [F. *rivage*, a shore or beach—from L. *rīpa*, the bank of a stream]: in *OE.*, a bank; a coast; a shore.

RIVAL, n. *rī'val* [F. *rival*—from L. *rīvālis*, one who uses a brook or small stream in common with another, a neighbor, a rival—from *rīvus*, a brook or small stream: It. *rivale*]: one who is in pursuit of the same object as another; a competitor: **ADJ.** having the same pretensions or claims: **V.** to strive to gain the object which another is contending for; to stand in competition with; to emulate; in *OE.*, to be in competition; to be a competitor. **RÍ'VALLING**, imp. **RÍ'VALLED**, pp. *-vald*. **RÍ'VALRY**, n. *-val-rī*, a striving to obtain an object another is pursuing; competition. **RÍ'VALSHIP**, n. state of a rival; contention for superiority or for the same object.—**SYN.** of 'rivalry': competition; emulation; ambition; rivalship; strife.

RIVALITY, n. *rī-vāl'ī-tī* [L. *rivalitas*, rivalship, as in love: see **RIVAL**]: in *OE.*, equal rank; competition; rivalry.

RIVE—RIVER.

RIVE, v. *rīv* [Icel. *rifa*, to tear asunder: Sw. *rifva*, to tear: Dan. *rive*, to rend or tear]: to split; to rend or burst asunder; to be split. **RÍVING**, imp. **RIVED**, pp. *rīvd*, or **RIVEN**, pp. *rīv'n*: **ADJ.** cloven; split. **RIVER**, n. *rīvér*, one who rives.

RIVE-DE-GIER, *rēv-dēh-zhē-ā'*: flourishing manufacturing town of France, dept. of Loire, on the Gier, in the middle of the best coal-field in France, 13 m. n.e. of St. Etienne by railway. There is water-communication with the Rhone by the Canal-de-Givors. South of the town is the immense and well-built basin of Couson, containing 1,500,000 cubic *mètres* of water for supply of the canal. R. was formerly a mere stronghold, surrounded by high walls, and defended by a strong castle; and 1815, the number of its inhabitants was less than 4,000. Around the town, there are about 50 coal-mines in operation; and the principal manufacturing establishments are silk-mills, important glass-works, factories for steam-engines and other machinery, steel factories and foundries. Pop. (1881) 16,136; (1886) 13,728.

RIVEL, v. *rīv'él* [AS. *ge-riflian*; Dut. *ruyffelen*, to wrinkle]: in *OE.*, to wrinkle; to shrivel; to corrugate. **RIV'ELLING**, imp. **RIVELLED**, pp. *rīv'ld*.

RIVER, n. *rīv'ér* [F. *rivière*, a river—from mid. L. *ri-pāriā*, a shore, a river—from L. *rīpa*, a bank: Sp. *ribera*; It. *riviera*, a shore, bank, or river]: stream of water flowing in a channel into another river, into the ocean, or into a lake or sea (see below): a copious flow; abundance. **RIVER-BASIN**, the whole extent of valley or basin-shaped country drained by any river and its tributaries. **RIVER-CRAFT**, small vessels or boats which do not put to sea. **RIVER-BED**, the bottom of a river. **RIVER-GOD**, a deity supposed by the ancients to preside over a river. **RIVER-HORSE**, the hippopotamus—an animal living in rivers. **RIVER-TERRACE**, a more or less steep cliff, a few ft. or several yds. high, with a flat terrace on a level with top. Terraces occur in valleys of the n. hemisphere, and show the action of the river in scooping out its bed when it flowed at a higher than its present level. They are attributed to elevation of the continents, giving increased rapidity to the flow of water, together with a decrease of the amount of water, after a depression following the Glacial Period, when river-beds were filled up with the large amount of material deposited during the reign of ice, and especially of fine material from floods on the melting of the ice. The cliff corresponds to the present bank, and the terrace to the alluvial plain through which the river runs. The cliffs and terraces are repeated several times in some river-basins, and they frequently correspond on the two sides of the valley. They follow the course of the river, sloping downward with decline similar to the descent of the stream; in this differing from the parallel roads formed by standing water. See **QUATERNARY AGE**: **TERRACE EPOCH**: **GLENROY**.

RIVER.

RIVER: natural stream of water, usually of considerable size, flowing between banks or walls. Rivers are the result of the natural tendency of water, as of all other bodies, to move downward to the lowest position that it can reach. The supply of water for formation of rivers, though apparently derived from various sources, as from rain-clouds, springs, lakes, or from melting of snow, is really due only to atmospheric precipitation; for Springs (q.v.) are merely collections of rain-water; lakes are collections of rain or spring water in natural hollows, and snow is merely rain in a state of congelation. The rills issuing from springs and from surface-drainage unite during their downward course with other streams, forming *rivulets*, or brooks; these, after a further course, unite to form *rivers*, which, receiving fresh accessions in their course from *tributaries* or *affluents* (subordinate rivers or rivulets) and their *feeders* (the tributaries of tributaries), sweep onward through ravines, and over precipices, or pass with almost imperceptible motion across wide plains, till they reach their lowest level in ocean or lake. The path of a R. is called its *course*; the hollow channel along which it flows, its *bed*; and the tract of country from which it and its subordinates draw their supplies of water, its *basin*, or *drainage-area*. The basin of a R. is bounded by an elevated ridge, part of which is generally mountainous, the crest forming the water-shed; and the size of the basin, and the altitude of its water-shed, determine *cæteris paribus*, the volume of the R.: see RAIN. The greater or less degree of uniformity in the volume of a river in the course of a year is one of its chief physical features, and depends much on the mode in which its supply of water is obtained. In temperate regions, where the mountains do not reach the limit of perpetual snow, the rivers depend for their increase wholly on the rains, which, occurring frequently, and at no fixed periods, and discharging only comparatively small quantities of water at a time, preserve a moderate degree of uniformity in the volume of the rivers—a uniformity aided by the fact, that in these zones only about one-third of the rainfall finds its way directly over the surface to the rivers; the remaining two-thirds sinking into the ground, and finding its way to spring-reservoirs, or gradually oozing through at a lower level in little rills which continue to flow till the saturated soil becomes drained of its surplus moisture, a process which continues for weeks, and helps greatly to maintain the volume of the R. till the next rainfall. This process is possible only where the temperature is mild, the climate moist, evaporation small, and the soil sufficiently porous; and under these circumstances, great fluctuations can occur only from long-continued and excessive rains or droughts. In the hotter tracts of the temperate zones, where little rain falls in summer, small rivers and mountain torrents occasionally become completely exhausted.

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In tropical and semi-tropical countries, on the other hand, the year is divisible into one dry and one wet season (see RAIN): in consequence, the rivers also have a periodicity of rise and fall, the rise taking place first near the source, and, on account of the great length of course of some of the tropical rivers, and the excessive evaporation to which they are subjected (necessarily greatest where the current is slow), not making itself felt in the lower part of their course till a considerable time afterward. Thus, the rise of the Nile occurs in Abyssinia in April, and is not observed at Cairo till about midsummer. The fluctuations of this river were a subject of perpetual wonder to the ancient civilized world, and were of course attributed to superhuman agency; but modern travel and investigation have not only laid bare the reason of this phenomenon, but discovered other instances of it, before which this one shrinks into insignificance. The maximum rise of the Nile, about 40 ft., floods 2,100 sq. m. of ground; while that of the Orinoco, in Guiana, which is 30 to 36 ft., lays 45,000 sq. m. of savannah under water; the Brahmaputra at flood covers the whole of Upper Assam to a depth of 10 ft., and the mighty Amazon converts a great portion of its 500,000 sq. m. of silvas into one extensive lake. But the fluctuations in the rise of the flood-waters are surpassed by some of the comparatively small rivers of Australia, one of which, the Hawkesbury, has been known to rise 100 ft. above its usual level: this, however, is because the river-beds are hemmed in by lofty abrupt cliffs, which resist the free passage of a swollen stream.

The increase from the melting of snow in summer occurs most frequently during the rainy season, so that it is difficult to determine accurately the share of each in producing the floods; but in some rivers, as the Ganges and Brahmaputra, the increase from this cause is distinctly observable, as it occurs some time after the rains have commenced, while in the case of the Indus it is the principal source of flood. When the increase from melted snow does not occur during the rainy season, we have the phenomenon of flooding twice a year, as in the Tigris, Euphrates, Mississippi, and others; but in most of these cases the grand flood is that due to the melting of the snow or ice about the source. In illustration of the enormous variation in the volume of rivers subject to periodical rise and fall, a few instances are presented in which the minimum and maximum delivery per second have been ascertained:

DELIVERY IN CUBIC FT. PER SECOND.

	Minimum.	Maximum.	Average for a Year.
Nile (at Assouan),..	24,000	362,000	101,000
Ganges,.....	36,000	494,000	141,000
Irrawadi,.....	84,000 (?)	1,000,000 (?)	350,000
Brahmaputra.....	146,000	1,800,000 (?)	520,000

The advantages of this periodical flooding in bringing down abundance of rich fertile silt—the Nile bringing down, it is said, no less than 140 millions of tons, and the Irrawadi 110 millions of tons annually—are well known. Islands are thus frequently formed, especially at a river's mouth (see DELTA). Permanent and capacious lakes in a river's course have a modifying effect, owing to their acting as reservoirs, as in the St. Lawrence; while the Red River of the North, the Mississippi, and others in the same tract, inundate the districts surrounding their banks for miles. In tropical countries, owing to the powerful action of the sun, all rivers whose source is in the regions of perpetual snow experience daily augmentation of their volume; while some in Peru and Chili, being fed only by snow-water, are dried up regularly during the night.

The course of a R. is necessarily the line of lowest level from its starting-point, and as most rivers have their sources high up a mountain slope, the velocity of their current is much greater at the beginning. The courses of rivers seem regulated partially by geological conditions of the country—e.g., the San Francisco of Brazil, which forms with perfect accuracy the boundary-line between the granitic and the tertiary and alluvial formations in that country; and many instances are known of rivers changing their course from the action of earthquakes, as well as from the silting up of the old bed. The inclination of a river's course also is connected with the geological character of the country; in primary and transition formations, the streams are bold and rapid, with deep channels, frequent waterfalls and rapids, and pure waters, while secondary and alluvial districts present slow and powerful currents, sloping banks, winding courses, and tinted waters; the incline of a river is, however, in general very gentle—the average inclination of the Amazon through its whole course being estimated at little more than 6 inches per mile, that of the Lower Nile less than 7 inches, and of the Lower Ganges about 4 inches per mile. The average slope of the Mississippi through its whole length is more than 17 inches per mile, while the 'arrowy Rhone' is, among large rivers, the most rapid in the world—its fall from Geneva to Lyon being 80 inches per mile, and 32 inches from Lyon to its mouth.

The velocity of rivers does not depend wholly on their slope; much is owing to their depth and volume (the latter being proved by the fact that the beds of many rivers remain unaltered in size and slope after their streams have received considerable accessions, owing to the greater rapidity with which the water runs off); while bends in the course, jutting peaks of rock or other obstacles, whether at the sides or bottom, and even the friction of the aqueous particles, which, though slight, produces perceptible effect, are retarding agencies. In consequence, the water of a R. flows with different velocities at different parts of its bed; it moves more

RIVER.

slowly at the bottom than at the surface, and at the sides than the middle. The line of quickest velocity is a line along the centre of the current, and in cases where this line is free from sudden bends or sharp turns, it represents also the deepest part of the channel. The average velocity of a R. may be estimated approximately by finding the surface-velocity in the centre of the current by means of a float which keeps just below the surface, and taking four-fifths of this quantity as a mean. If the mean velocity in ft. per minute be multiplied by the area of the transverse section of the stream in sq. ft., the product is the amount of water discharged in cubic ft. per minute. According to Sir Charles Lyell, a velocity of 40 ft. per minute will sweep along coarse sand; one of 60 ft., fine gravel; one of 120 ft., rounded pebbles; one of 180 ft. (a little more than two m. per hour), angular stones the size of an egg. For the rate of its progression, and a general description of the erosive action of rivers, see WATERFALLS. By far the greater number of rivers find their way to the ocean, either directly or by means of semi-lacustrine seas; but others, as the Volga, Sir-Daria (Jaxartes), Amu-Daria (Oxus), and Kur (Araxes), pour their waters into inland seas; while many in the interior of Asia and Africa—as the Murghab in Turkestan, and the Gir in the south of Morocco—‘lose themselves in the sands,’ partly, doubtless, owing to the porous nature of their bed, but much more to the excessive evaporation in those regions. For the deep cañons of some American rivers, see COLORADO RIO. The following are a few of of the chief rivers in each continent, with their courses in English statute m., and their drainage areas in English geographical sq. m.:

EUROPE.

	Length.	Drainage area.
Thames.....	220	5,000
Vistula.....	598	57,000
Loire.....	598	34,000
Rhine.....	750	65,000
Elbe.....	787	42,000
Dwina.....	1,041	106,000
Don.....	1,104	168,000
Dnieper.....	1,243	170,000
Danube.....	1,722	234,000
Volga.....	2,762	397,000

ASIA.

Euphrates.....	1,716	196,000
Ganges.....	1,557	391,000*
Indus.....	1,800	372,000
Maykan or Mekhong.....	2,417	216,000†
Thaluain or Salwin.....	2,152 }	331,000
Irrawadi.....	2,532 }	
Hoang-ho.....	2,624	537,000
Obi.....	2,670	925,000
Amur.....	2,739	583,000
Lena.....	2,762	594,000
Yenesei.....	3,322	785,000
Yang-tze-kiang.....	3,314	548,000

* Excluding Brahmaputra, 1,800 miles long, with basin of 361,000 sq. m.
 † Including basin of Menam.

RIVER.

AFRICA.

Zambesi	1,400	432,000
Congo	2,900	1,300,000
Nile.....	3,300	520,000

AMERICA.

St. Lawrence.....	2,072	298,000
Rio Bravo del Norte.....	2,138	180,000
La Plata.. ..	2,210	886,000
Mackenzie.....	2,440	442,000
Amazon.....	3,545	1,512,000
Mississippi.....	3,716	982,000

River : Rights in Law (Riparian Rights).—It is generally settled in all of the states that rivers in which the tide does not ebb and flow, though declared public highways for certain purposes, are nevertheless private property, and the soil to the middle of the river belongs to the riparian or adjoining owner, subject only to the right of the public to use it. But in navigable rivers where the tide does ebb and flow, the soil belongs to the state, up to the ordinary high-water mark: the riparian owner, unless he has a special grant, owning no farther than to high-water mark. In a few states this doctrine has been repudiated, and if the river be navigable for any useful purpose, whether the water be tidal or fresh water, the title to the soil or bed of the river is in the state. The owner in either case, whether the river be tidal or fresh water, may exercise his proprietary interest by erections on the soil of the river, provided that such erections do not interfere with the public use or navigation of the waters covering the soil. Individuals may acquire and hold separate rights, sometimes conflicting and sometimes consistent with the rights of the state. A riparian owner has other rights than those possessed by other citizens of the state: such rights are incident to the ownership of the property on the river-banks: among these riparian rights are—

1. The right to navigate up and down and across the river and from the opposite shore to his own land, with the privilege of embarking himself and others and the produce of his farm and other goods therefrom.

2. The right to establish a ferry to the opposite shore and to control the terminus of a ferry from the opposite shore to his own.

3. The right to fish, also the sole right of fishing with nets or seines in connection with his own land.

4. The right to own, as his individual property, alluvial additions.

5. The right to put the water that washes his bank to whatever uses his pleasure or business may prompt, if he does not interfere with the rights of the public.

In some of the states, if the river be non-tidal and non-navigable, these rights attach; but if the tide ebb and flow and the river be navigable, the riparian owner has none of these peculiar privileges, except that of alluvion and accession: his rights are no greater than

RIVER-CRAB—RIVET.

those of other citizens, in and to the soil between high and low-water mark.—See WATERCOURSE, in Law.

RIVER-CRAB (*Thelphusa*): genus of crabs inhabiting fresh water, and having the carapace quadrilateral, the antennæ very short. One species (*T. depressa*), the *Grancio* of the Italians, is very common in s. Europe, and is often figured on ancient Greek medals. It inhabits muddy lakes and slow rivers; in some it absolutely swarms. It can be kept alive in a damp place for a long time, and is often brought to market tied on strings,



River-crab (*Thelphusa depressa*).

far enough apart to prevent fighting and mutilation. This crab spends the winter deeply imbedded in the mud.—Other species are common in warm countries. *T. cunicularis* is abundant on the Ghauts of the Deccan, in India, burrowing in the ground, and running about among the long grass. It ‘runs with considerable swiftness, even when encumbered with a bundle of food as big as itself; this food is grass, or the stalks of rice; and it is amusing to see the crabs sitting, as it were, upright, to cut their hay with their sharp pincers, and then waddling off with their sheaf to their holes, as quickly as their sidelong pace will carry them.’ The name River-Crab is sometimes popularly applied to some of our sea-crabs which ascend rivers to the limits of brackish water, or to craw-fish.

RIVET, n. *riv'ët* [F. *river*, to rivet or clinch; *rivet*, the welt of a shoe, a rivet or clinch: Port. *rebitar*, to double back the edge or point of a thing, to clinch a nail: Icel. *rifa*, to tack together]: metal pin inserted into a hole pierced through two plates overlapping each other, and hammered broad at both ends in order to fasten the plates firmly together: rivets are frequently thus inserted and hammered down while red-hot, so that the contraction of the rivet in cooling may draw the plates into closer contact: V. to fasten firmly; to clinch; to drive and clinch a rivet; to make firm or immovable. **RIV'ETING**, imp. **RIV'ETED**, pp.

RIVIERA--RIZZIO.

RIVIERA, *rê-vê-â'râ* [It. sea-shore, coast]: term applied to the narrow strip of coast-land bordering the Gulf of Genoa from Nice to Spezzia. Between Nice and Genoa it is called the Riviera di Ponente, or w. coast, and between Genoa and Spezzia, the Riviera di Levante, or e. coast. It abounds in striking scenery, uniting beauty with grandeur. The modern road that traverses it was a work of formidable difficulty; it was begun under French rule, and finished by the Sardinian govt. after the fall of Napoleon. The old road, dangerous and almost impracticable, was known as the Corniche road, and this name is often applied to the modern one. A railroad traverses the whole length of the Riviera.

RIVOLI, *rê'vô-lê*: town of n. Italy, on the right bank of the river Dora, 8 m. w. of the city of Turin. Pop. 5,600.—**R.** must not be confounded with the village of the same name in the province of Verona, the scene 1797 of one of Napoleon's most decisive victories over the Austrians.

RIVOSE, a. *rî'vôs* [L. *rîvus*, a small stream]: applied to surfaces marked with irregular grooves or furrows.

RIVULET, n. *rîv'û-lêt* [L. *rivûlus*, a small stream—from *rîvus*, a river]: a small river or stream.

RIX-DOLLAR, n. *rîks-dô'llér* [Dan. *rigsdaler*; Ger. *reichsthaler*, literally, the dollar of the empire]: a silver coin of Denmark, etc., varying in value from about 30 cents to \$1.10.

RIXDORF, *rîks'dorf*: village of Germany, founded by Bohemian Moravian Brethren 1737, with the permission, and under the protection, of Frederick William I. It is s.e. of Berlin and connected with it by a street railway, and is virtually a suburb of that city. The German R., now a part of Bohemian R., is much older; and in 1435 was called Riegenstorp, and 1630 Richardsdorf. The inhabitants of R. are engaged in weaving, manufacture of india-rubber goods, and in such other occupations as are carried on at Berlin and its vicinity. Pop. (1880) 18,729; (1890) 37,400; (1900) 90,422.

RIZAH, *rê'zâ*: town of Asiatic Turkey, pashalic of Trebizond, on the coast of the Black Sea, 40 m. e. from Trebizond; with considerable trade, and manufactures of fine hempen fabrics. Pop. 30,000.

RIZZIO, *rî't'sê-o* (or **RICCIO**, *rê't'cho*), **DAVID**: Italian of considerable ability and accomplishments, who, in the reign of Mary Stuart, Queen of Scots, came to Edinburgh in the train of the ambassador from Savoy: died 1566, Mar. 9. His first employment at court was as a musician; but his skill and fidelity led Mary to advance him to the post of her French sec. about the time of her marriage with Darnley; and in this situation he was believed to possess considerable influence over the queen. His advancement was distasteful to the nobles in general, but especially to the party of the Reformers, who suspected him of intriguing with the papal court.

ROACH.

He became obnoxious on other grounds to Darnley and his father, the Earl of Lennox. The former, who had for a time been on the most friendly footing with him, was easily led to believe not merely that he was the real obstacle to his favorite design of having the crown settled on him and his heirs, but also that he had supplanted him in the affections of the queen. In this belief, he entered into a compact with the leaders of the Prot. party—including Murray, Ruthven, Morton—to assassinate R., and slay even in the queen's palace and presence whoever opposed them. Darnley formally bound himself to prevent the attainder of the conspirators, and procure their pardon, and to support and advance the Prot. faith, while the conspirators in return obliged themselves to procure the wished-for settlement of the crown in his favor. Accordingly, 1566, Mar. 9, when Mary, then seven months with child, was sitting at supper in a small cabinet adjoining her bedroom, at Holyrood, attended by the Countess of Argyle, the Commendator of Holyrood, Beaton, Master of the Household, Arthur Erskine, Cap. of the Guard, and R., the king led the conspirators up a secret stair, while the Earl of Morton, with a troop of soldiers, seized the gates of the palace. Led by the king, the conspirators burst into the cabinet, overturned the table, and threw themselves on R., who sprang for protection behind the queen. Ruthven drew his dagger; Ker of Fawdonside, it is said, held a pistol to the queen's breast; while George Douglas, natural son to the Earl of Angus, snatching the king's dagger, stabbed R. over the queen's shoulder, and dragging him from the cabinet, dispatched him in a pool of blood, in the adjoining apartment, with fifty-six wounds. This murder was the first of the series of tragic events in which Mary Queen of Scots was involved. John Knox, in his *History of the Reformation*, characterizes it as 'a just act, and most worthy of all praise.'

ROACH, n. *rōch*: the curve or arch at the foot of a square sail.

ROACH, n. *rōch*; the Cockroach (q.v.).



Roach (*Leuciscus rutilus*).

ROACH, n. *rōch* [AS. *reohche*; Ger. *roche*], (*Leuciscus rutilus*, see LEUCISCUS): a fish of the carp family (*Cyprinidæ*) plentiful in lakes, ponds, and slow-running

ROACH

rivers of the continent of Europe. It is seldom more than a pound in weight, though it has been known to reach five lbs. The upper parts are dusky-green with blue reflections, passing into silvery-white on the belly, the fins more or less red. The R. is gregarious, and the shoals are often large. It is partially migratory, ascending rivers from lakes to spawn. It is not greatly esteemed for the table. It is caught usually with bait, but sometimes with a small fly. From their resemblance to the Roach, the American dace are called sometimes by the same name, as is also, locally, a small freshwater sunfish.

ROACH, *rōch*, JOHN: ironmaster and shipbuilder: 1813, Dec. 25—1887, Jan 10: b. Mitchellstown, co. Cork, Ireland. Alone of all his family, he emigrated to America 1829. He first found employment in N. J. as water-boy serving a gang of men that were digging a canal; but disgusted with such conditions of life, he returned to New York, and for a short time was employed in a ten-pin alley. He next went to work in an iron foundry in the 'pines' of N. J., intending to return to Ireland when he should have money to pay his passage. At the end of 2 yrs. he had saved \$50, and that he paid to the proprietor of the foundry as an apprenticeship fee. He learned the trade of iron-molder, and later that of machinist. At the age of 21 he had saved \$1,500, but lost it all. Later, with a capital of \$100 he joined a few other mechanics in purchasing the *Ætna Iron Works* in New York: subsequently R. became sole owner of the works. The outbreak of the civil war brought to R. opportunities which he was not slow to improve. He constructed for the govt. marine engines and monitors. After the war he became a builder of iron steamships, for river, coasting, and sea-going commerce. He established at Chester, Penn., 1871 a great shipyard with engine works in which were constructed vessels for the navy and the merchant marine. One of the last vessels built by R. for the govt., the dispatch-boat *Dolphin*, the sec. of the navy at first refused to accept on the ground that the vessel was 'structurally weak,' but afterward the *Dolphin* was accepted. The rejection of the vessel was a mortal wound to the pride of the 'father of iron shipbuilding in America.' He made an assignment, closed his works, sickened, lingered a few months, and died. R. was a man of remarkable simplicity and modesty: not in the least degree was he spoilt by prosperity. He owed absolutely nothing to school-education, but nature had gifted him with rare intellectual power, and in a life of unceasing activity he had contrived to master the entire field of his vocation in all its aspects. In his shipyards were constructed in all 114 iron vessels.

ROAD—ROADS AND ROAD-MAKING.

ROAD, n. *rōd* [AS. *rad*; Dut. *reede*; Dan. *ridt*, a riding, a road: AS. *ridan*, to ride: F. *rade*, an anchorage-ground for ships (see **RIDE**)]: a public way by which passengers, vehicles, and animals may pass from place to place; a highway (see **ROADS AND ROADMAKING**): in *law* (see **HIGHWAY**): anchoring-ground for ships: in *OE.*, inroad; incursion; a journey. **ROAD-METAL**, stones broken small for covering and repairing roads. **ROAD-STEAD**, n. *rōd'stēd*, or **THE ROADS**, place where ships may safely *ride* at anchor, at some distance from the shore. **ROAD'STER**, n. *-stēr*, a horse fitted for travelling; a ship at anchor. **ROAD-SURVEYOR**, an officer whose duty it is to see public roads kept in a good state of repair. **ROAD VEHICLES** (see **VEHICLES, ROAD**). **ROAD'-WAY**, n. *-wā*, the part of a road travelled by vehicles. **ROADSIDE**, n. the side of a road: **ADJ.** by the side of a road, as a *roadside* inn. **ON THE ROAD**, travelling. **TO TAKE TO THE ROAD**, to engage in robbery upon the highways. **LAW OF THE ROAD** (see **RULE OF THE ROAD: NAVIGATION LAWS**).—**SYN.** of 'road': highway; street; lane; way; path; pathway; route; course; passagc.

ROADS AND ROAD-MAKING: ways, highways, streets; and the art of their construction. Roads form a primary element in the material advancement of a nation, being essential to the development of the natural resources of the country. Railways have in modern times superseded to some extent the common highways; still these retain their importance, both independently and as essential auxiliaries.

The Romans were great constructors of roads, and regarded them as of vital importance for conquest and the maintenance of their empire. They are said to have learned the art from the Carthaginians. Except where some natural barrier made it impossible, the Roman roads were almost invariably straight; probably because the chief means of transport then in use were beasts of burden, and not wheeled vehicles, which made preservation of the level of less consequence. The substantial character of the Roman roads is shown by the fact that they have in some instances borne the traffic of 2,000 years without material injury. The plan of construction was nearly uniform (for its description see **APPIAN WAY**). They varied in breadth from 15 to 8 ft., and had often raised footpaths at the sides, and blocks of stone at intervals, to enable travellers to mount on horseback.

The roads made by the Romans in Britain gradually fell into decay, and the attempts now and then made to repair them were insufficient to prevent England falling into a worse state with respect to its highways than most other European countries. In 1285 one of the earliest laws on the subject of roads was passed. It directed that all trees and shrubs be cut down to the distance of 200 ft. on either side of roads between market-towns, to prevent concealment of robbers in them. The first toll for the repair of roads was levied by the authority of Edward III. 1346, on roads which now form

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part of the streets of London. In 1555, an act was passed requiring each parish to keep its roads in repair; but long after this, the roads even in the neighborhood of London were wretchedly bad, and in other parts of the country still worse. Mostly, indeed, they were mere horse-tracks; the chief advantage in following them being, that they led along the higher grounds and so avoided bogs. These trackways were usually impassable in winter; being narrow, and in many places so deep and miry as to be more like ditches than roads. So late as 1736, the roads in the neighborhood of London were so bad that in wet weather a carriage could not be driven from Kensington to St. James's Palace in less than two hours, and sometimes stuck in the mud altogether. Much curious information on the state of the roads and means of conveyance in England during the long period from the decay of the Roman roads to the middle of the 18th c. is in Smiles's *Lives of Engineers*, vol. I.

In the Eng. colonies in America, roads were laid out and maintained by the several towns or by the several counties, and the same system still endures in the United States. In most states the care of the roads is incumbent on the towns or townships traversed by them. The first turnpikes in the United States date from the end of the 18th c.: they were controlled by private stockholders or companies, though often towns subscribed to the stock. The federal govt. in the beginning of the 19th c. made appropriations of money for construction of roads for military purposes—'national roads,' so called. One of these roads extended from Baltimore to St. Louis: there was also a national road from Bangor, Me., to Holton in the same state. Many of the turnpike roads were plank-roads: the national roads were metalled with broken stone or with gravel.

A project was recently (1891) broached in the N. Y. legislature, of declaring certain roads state highways, and having them maintained by the labor of convicts.—For roads, in law, see HIGHWAY.

In laying out a new line of road, the skill and ingenuity of the engineer are taxed to make the gradients easy, with as little expense as possible in excavating and embanking (see EMBANKMENT), and to do this without deviating much from the direct course between the fixed points through which the road must pass. In order to do this, an accurate survey of the tract, including the relative levels of its different parts, and the nature of the strata, is a necessary preliminary. The formation of an extended line of road often involves the construction of extensive bridges, viaducts, and the like, which require great engineering skill.

The importance of easy gradients or inclinations in roads is known in a general way; but it gives a more precise idea of it to state that, while the force requisite to draw a wagon weighing 6 tons along a level macadamized road is 264 lbs., on a road with an ascent of 1 in

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70 the force required is 456 lbs., i.e., $\frac{1}{70}$ part of 6 tons over and above 264 lbs. The greatest declivity which can be given to a road, so that horses may move down it with safety in a fast trot, varies according to its nature; for paved roads, 1 in 63—for those macadamized, 1 in 35—and for those laid with gravel, 1 in 15, have been considered the limit.

The best transverse form for a road is in debate among engineers. All agree that it should be higher in the middle than at the sides, but some would make it much higher than others. As a road can be better kept clear of water by a slight inclination in the direction of its length, than by any form which can be given to its cross-section, it should not be highly convex, since that would prevent its availability for traffic throughout all parts of its breadth, inasmuch as it is almost necessary to keep on the centre of a highly convex road, and consequently to wear deep furrows there, by confining wheels and horses to nearly the same track. Fig. 1

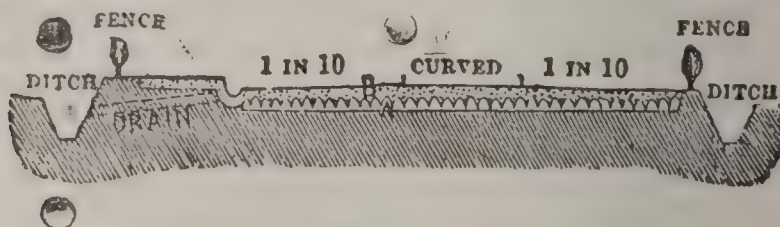


Fig 1.—Cross Section of a Road.

A, Foundation of rough pavement or concrete; B, Broken stones.

shows a transverse section of a road of a form approved by some engineers—the slope is 1 in 30, with a few ft. in the centre on a flat curve; but in most cases a somewhat higher curve would probably be desirable. Different opinions are held also as to whether the bed upon which the road is to be formed should be flat or rounded: those who prefer it flat considering that there should be a greater depth of material at the centre than at the sides, while others think that the depth should be uniform.

In construction of the road itself, the first point to consider is the foundation. The majority of roads have no artificial foundation: in such cases, the surface on which the road-material is to be laid, is generally made as solid as possible by efficient drainage, and by rolling and beating where embankments are formed. It is the question whether or not a road should have a foundation of rough pavement below the broken stone covering, which is the essential point of difference between the two great rival systems of Telford and Macadam. Telford (q.v.) considered it of great importance that there should be such a foundation. He made it of stones varying in depth from nine inches at the centre to three inches at the sides of the road, these being set with their broadest edge downward, and no stone being more than four inches broad on the upper edge; upon these were

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placed a coating of broken stones not exceeding six inches in thickness. Roads on this plan have showed excellent endurance; and on the whole, for ordinary use the Telford seems unsurpassed. For Macadam's method see MACADAMIZING. He preferred a yielding and soft foundation to one rigid; so that even on boggy ground, if it were but firm enough to sustain a man walking over it, he considered artificial bottoming quite unnecessary. His roads were entirely of angular pieces of stone, of such a size as to pass freely through a ring $2\frac{1}{2}$ inches in diameter. This plan has now fewer advocates than Telford's, or than the one subsequently proposed by Thomas Hughes, where a concrete of gravel and lime is employed for the foundation of the road. But experience has shown Macadam's plan of employing angular pieces of stone is superior to every other as a mere covering for roads, whether they have artificial foundation or not. Macadamized streets have not been found satisfactory in populous cities with heavy traffic, as under such circumstances they are in winter constantly covered with mud; and in summer, profuse watering is required to keep them from being overwhelmed with dust. However, the French road-engineers some years since came to the conclusion that a covering of broken stone alone is sufficient on the most frequented roads and under all but the heaviest traffic. For pavement in cities (of stone blocks, now mostly 'Belgian'), also of wood, and of asphalt, see PAVEMENT.

For covering roads, granite and the different kinds of greenstone and basalt, ordinarily called whinstones, are the only kinds of stone admissible. Sandstone is too easily crushed, limestone is objectionable from its slight solubility in water. The stone employed should be tough as well as hard. Flint is hard enough, but it is brittle, and easily crushed to powder. The object is to get it to bind into a firm mass, and not to roll about, after it has been laid down for some time.

Drainage is in great part secured by the plan on which a road is made: any further drainage required can in many situations be effected by ditches on either side. Where this is not possible, as in cuttings more or less deep, a drain is either made down the centre, with branch-drains from the sides running into it; or drains are formed along the sides, with gratings at proper intervals to take in the surface-water. If the ground beneath the road is of clay or of any kind of wet soil, under-drainage must be resorted to; and wherever there are footpaths, small drains require to be placed under them, if there is no other means of carrying off the water from the channel between them and the road.

ROAM—ROAN-TREE.

ROAM, v. *rōm* [OF. *romier*; It. *romeo*, a pilgrim, one who makes a pilgrimage to Rome—from *Roma*, Rome: the derivation more likely in the following direction—AS. *ryman*, to make room: Icel. *ryma*; Ger. *räumen*; Dut. *ruimen*, to make or leave room]: to range; to ramble; to wander over; to move about from place to place without any certain purpose: N. a ramble. **ROAM'ING**, imp.: N. the act of wandering; a ramble. **ROAMED**, pp. **ROAM'ER**, n. *-ēr*, one who roams.—**SYN.** of 'roam, v.': to ramble; stroll; wander; stray; range; rove.

ROAN, a. *rōn* [OF. *rouën*; F. *rouan*; Sp. *ruano*; It. *roano*, roan: origin unknown]: applied to a horse of a bay or dark color, with spots of gray or white thickly interspersed; of a color having a decided shade of red: N. grained sheepskin leather.

ROANNE, *rō-ānn'*: thriving town of France, dept. of Loire; after St. Etienne, most important town in the dept. for industry and commerce; on the left bank of the Loire, here navigable, 52 m. by railway n.w. of Lyon. Its streets are wide, and its houses handsome. The chief structures are the bridge over the Loire, the public library, and the college buildings. There are important manufactures of muslins, calicoes, and woolen and other fabrics, and ship-building at several dockyards. R. is also a most important entrepôt for commerce between n. and s. France. Around and within the town are numerous traces of the ancient Roman rule and civilization.—Pop. (1881) 24,992; (1901) 34,901.

ROANOKE': river of Va. and N. C., formed by the union, at Clarkesville, Va., of the Dan and Staunton rivers, which rise in the Alleghanies. It flows s.e. through the n.e. portion of N. C., and empties into Albemarle Sound. It is navigable for large vessels to Weldon, head of tide-water, 150 m.; its length is 260 m. In 1861, Albemarle Island, at its mouth, and Plymouth, were taken by the Federal gunboats.

ROANOKE, *rō-a-nōk'*: city, in Roanoke co., Va.; on the Norfolk and Western and the Shenandoah Valley railroads; 53 m. w. of Lynchburg, 90 m. w.s.w. of Richmond. It is in an agricultural and iron mining region, and has become an important manufacturing place, carrying on several tobacco factories, iron works, car shops, and locomotive works. It had (1902) 2 nat. banks (cap. \$200,000), 2 state banks (cap. \$290,000), and 1 incorporated firm, and 3 daily and 3 weekly periodicals.—Pop. (1890) 16,159; (1900) 21,495.

ROAN-TREE, or **ROWAN-TREE**, n. *rō'an-trē* or *row'ān* [Icel. *reynir*, the rowan-tree or mountain-ash: Sw. *rönn*: Dan. *røn* or *rønnetræ*]: a tree bearing small red berries in large clusters; the mountain-ash, the branches and other parts of which are famous among the superstitious as spells against witches and warlocks; the European *Pyrus aucuparia*, ord. *Rosacææ*. The American species are *P. Americana*, and the elder-leaved *P. sambucifolia*, with blunt or short-pointed leaves.

ROAR—ROAST.

ROAR, n. *rôr* [AS. *rarian*, to roar, to cry out: Dut. *reeren*, to roar: an imitative word]: the deep full cry of a large animal; any deep loud noise of some continuance; loudly expressed mirth; the howling of a tempest; the sound of stormy waves of the sea: V. to utter a deep loud cry, as a large animal; to give forth a loud and deep continuous noise; to cry aloud; to bawl. **ROAR'ING**, imp.: **ADJ.** uttering a deep loud sound: N. a loud deep cry, as of a lion; a loud deep cry of distress, **ROAR'ER**, n. *-ér*, one who roars; a broken-winded horse (see **ROARING**, below). **ROAR'INGLY**, ad. *-lî*. **ROARED**, pp. *rôrd*. **TO DRIVE A ROARING TRADE**, *familiarly*, to do a very large business.

ROAR'ING: disease of the air-passages of the horse, characterized by a grating, roaring noise, most noticeable during inspiration, and when the animal is galloped in heavy ground. It usually depends on wasting of some of the muscles of the larynx; is apt to result from frequent attacks of cold, from strangles, inflammation of the neck-vein, or from tight reining. It constitutes unsoundness, unfits the animal for satisfactory performance of fast work, is apt gradually to become worse, when a sharper whistling noise is produced, and is seldom curable. In recent cases, a dose of physic should be given, a smart blister applied to the throat, or a seton inserted. As in broken-winded subjects, the breathing is much less distressed when the horse is fed and watered several hours before being required to exert himself. He should have a liberal supply of good oats, but only a limited allowance of hay, which should be given damped. In bad cases, tracheotomy may be performed, and a pipe inserted in the windpipe, with which heavy draught-horses have been known to work regularly for years.

ROAST, v. *rôst* [OF. *rostir*; F. *rôtir*, to roast: Ger. *rôsten*, to roast; *rost*, a grate: Gael. *rost*, to roast]: to dress meat for the table by exposing it to the direct action of heat, as on a spit, in an oven, etc.; to heat to excess; to dry and parch by heat; to tease or banter; to burn broken ore in a heap to free it from some foreign matters; to oxidize by heating in contact with air: N. that which is prepared by heat, as meat: **ADJ.** prepared by heat. **ROAST'ING**, imp.: N. act of one who roasts; the process by which anything is roasted (see below): a bantering. **ROAST'ED**, pp. **ROAST'ER**, n. *-ér*, he who or that which roasts. **TO ROAST ONE**, to banter and poke fun at one beyond endurance. **TO RULE THE ROAST**, to govern; to manage; probably only a corruption of 'to rule the *roost*,' in allusion to the cock among his hens.

ROASTING.

ROASTING. All the apparently numerous forms of cookery may be reduced to two, viz., Roasting and Boiling (q.v.). In this general sense, roasting may be held to include broiling, baking, and all other processes which consist essentially in exposure of food to the action of heat without the presence of any fluid excepting its own natural juices. Chemistry and experience alike teach that the first application of heat in roasting should be powerful and rapid, so as to form an external wall, by hardening the skin, and coagulating the superficial albuminous juices, and thus retain the deep-seated juices as much as possible within the meat. This external crust is usually formed in about 15 minutes, after which the meat should be removed to a greater distance from the fire, subjected to less heat, and allowed to cook slowly. The evaporation of the internal juices may be further restrained by the free and early application of flour—a process known as dredging. The loss of weight in roasting is greater than in boiling; but it is due mainly to the melting out of fat and the evaporation of water, while the nutritive matter remains in easily digestible form in the interior. Rules for calculating the time requisite for roasting a joint of given weight are in all the ordinary cookery-books. Unless the roasting is continued long enough, those parts nearest the centre do not become hot enough to allow the albuminous matters to coagulate, hence they appear red, juicy, and *underdone*, as it is commonly called. The exact nature of the chemical changes which occasion the peculiarly agreeable odor of roasted meat is unknown.

ROB, v. *rōb* [OF. *rober*; Sp. *robar*; It. *rubare*; Dut. *rooven*; Dan. *rōve*, to take by violence, to plunder: OHG. *raup*, spoil: mid. L. *raubārē*, to rob (see **ROBE**)]: to deprive of by force, or by secret theft; to steal; to plunder; to take from; in *OE.*, to deprive of something displeasing; to set free. **ROB'ING**, imp. **ROBBED**, pp. *rōbd*. **ROB'ER**, n. *-bér*, one who takes the goods of another by force, by open violence, or by secret theft. **ROB'ERY**, n. *-ī*, the forcible taking away of the goods or money of another; a plundering; theft (see below).—**SYN.** of 'robber': thief; depredator; brigand; pirate; freebooter; despoiler; plunderer; pillager; rifler; —of 'robbery': spoliation; freebooting; piracy; pillage; plunder; despoliation; theft; depredation.

ROB, n. *rōb* [It. *robbo*; F. and Sp. *rob*; Ar. *robb*, rob]: conserve of fruit; extract or juice of ripe fruit prepared with honey or sugar and boiled to the consistence of a syrup so that it will keep. The name is supposed to be from the similarity of this syrup to the saccharine pulp of locust-pods, called *Al-garoba* by the Moors. The juices of strawberries, raspberries, gooseberries, currants, etc., are boiled with sugar until they form *robs*, used for flavoring drinks, etc.

ROB'ER COUN'CIL: see **EPHESUS, COUNCILS OF**.

ROBBERY—ROBERT I.

ROB'BERY, in Law: felonious and forcible taking of the property of another from his person or in his presence, against his will, by violence or by putting him in fear. It is distinguished from common larceny or theft by the element of force or fear; the taking must be by force either actual or constructive, but if force be used, fear is not an essential ingredient.

In most of the states it is R. to take by violence or by putting the owner of the goods taken in fear. The degree of the force is immaterial if it is sufficient to deprive the person of his property against his will. The taking or carrying away is another essential element. Immediate restitution of the property to the owner will not relieve the wrongdoer from the guilt of R. Possession is sufficient to give title as against the robber. Any threat made with the intent to produce fear or terror of an injury to the person, property, or reputation is sufficient: the fear need not be of violence to the person robbed; it is sufficient if the person against whom the violence is threatened is bound by ties of blood or affection to the person to whom the threats are made. Consent will not constitute a defense if obtained through fear. The punishment for R. in all of the states is imprisonment for a long term of years; the term being much longer when the robbery is committed with dangerous or deadly weapons.

ROBBINS, n. plu. *rōb'binz* [a corruption of *rope-bands*: Ger. *raabanden*, rope-bands: Icel. *ra*, a sail-yard; *band*, a tie]: small ropes on board a ship that fasten sails to their yards.

ROBE, n. *rōb* [F. *robe*, a gown or mantle: It. *roba*, a long upper garment—from mid. L. *rauba*, the spoil of robbery, clothes; *raubārē*, to rob, to plunder: Sp. *ropa*, clothes]: a long loose garment worn over the dress; a dress of dignity or state; an elegant dress: V. to put on a robe; to dress with magnificence or splendor; to array; to dress. **RO'BING**, imp. **ROBED**, pp. *rōbd*. **ROBEMAKER**, one who makes the official robes or gowns of clergymen, barristers, aldermen, etc. **MASTER OF THE ROBES**, an officer of the royal household who orders the sovereign's robes. **MISTRESS OF THE ROBES**, the lady highest in rank attending on the queen, and who has the care of her robes. **ROBING-ROOM**, the apartment or apartments where noblemen and lawyers put on their official robes. *Note*.—**ROBE** is literally the skin with its rough hair which has been robbed or plundered from an animal for man's use, the primary sense being still retained in 'buffalo robes' of northwest Amer.: see **ROB 1**.

ROBERT I., King of Scotland: see **BRUCE, ROBERT (King)**.

ROBERT II—ROBERT.

ROBERT II., King of Scotland : 1316, Mar. 2—1390, Apr. 19 (reigned 1371–90); son of Walter Stewart, and of Marjory, only daughter of Robert the Bruce. R. succeeded his uncle, David II., and became founder of the Stewart dynasty. Partly from disposition, and partly from the infirmities of age, R. was a peaceable and apparently weak ruler; though the period of his reign was one of frightful misery inflicted on both sides of the borders by the raids of the powerful and intractable Scotch barons, and the reprisals of the English wardens. In this reign there were invasions of Scotland by an English military and naval force under the command of the Duke of Lancaster (John of Gaunt) 1384, and again by King Richard II. himself 1385, which wasted the land as far as Edinburgh and Fife; and the great retaliatory expedition of the Scotch 1388, when two armies invaded and devastated England, by way of Carlisle and of Northumberland.

ROBERT III., King of Scotland : about 1340–1405 (reigned 1390–1405); son of Robert II. His baptismal name was John, but was changed on his accession. His imbecility as a ruler virtually placed the reins of govt. in the hands of his ambitious brother, Robert Earl of Menteith and Fife, whom, 1398, he created Duke of Albany—during whose régime the Scottish barons began to exercise that anarchic and disloyal authority, which, in the reigns of the first three Jameses, threatened to destroy the power of the sovereign altogether. Of R.'s two sons, the eldest was shockingly licentious; and the tragedy of his death in Falkland Castle appears in its traditionary version in Sir Walter Scott's *Fair Maid of Perth*.

ROBERT, *röb'ért*, CHRISTOPHER RHINELANDER : educational benefactor : 1802, Mar. 23—1878, Oct. 28; b. Brookhaven, N. Y., son of a physician. In 1830, he was chief of the firm of Robert and Williams, New York, and pres. of a coal company; in 1862, he retired from business. He founded the German Presb. Church, Rivington St.; gave largely to it, and to many objects, including Hamilton Coll. and Auburn Theol. Seminary; and established the coll. on Lookout Mt., Tenn., for instruction of the colored race. His chief gifts were for the founding of ROBERT COLLEGE in Constantinople (named for him by others), amounting to \$296,000 in his life-time, besides a legacy of \$125,000. It was organized by Cyrus Hamlin, D.D., with whom R. conferred while travelling in the East 1864; is on a Christian basis but unsectarian; and is wholly under control of 5 trustees in New York. There is a board of 20 instructors, of which George Washburn, D.D., is pres. The coll. has the usual courses of study and laboratories. From 1868, when it was opened, to 1888, the graduates numbered 209, and the number of different students 1,389. There were 171 students in all depts. 1888; and of the 90 in coll. classes, there were 35 Bulgarian, 31 Armenian, and 12 Greek. The college has exerted a quiet but extensive and very

ROBERT—ROBERTS.

powerful influence for good throughout the Turkish empire.—Mr. R.'s wife, ANNA MARIA R., b. New York 1802, Aug. 1 (d. there 1888, Apr. 9), dau. of William Shaw, organized and gave generously to homes for orphans, aged colored women, and other charities.

ROB'ERT, n. *röb'ért*, or HERB-ROBERT [said to be in allusion to *Robert*, Duke of Normandy]: a plant with pink stem and pink-veined corolla, found in waste ground, among stones and débris of rocks, of an offensive odor, and formerly esteemed as a medicine; the herb stinking crane's-bill; the *Gerāñūm Rober'tiānum*, ord. *Geraniacēæ*.

ROB'ERT OF GLOUCESTER, *glös'ter*: old English (metrical) chronicler, of whom absolutely nothing is known, except that he was alive about the time of the great battle of Evesham (1265). Robert's work is a 'history' of English affairs from the arrival of the fabulous Brutus to the end of Henry III.'s reign; and is valuable partly for its matter (though that is in the main taken from Geoffrey of Monmouth and William of Malmesbury), but more for the language, there seen in its transition from Anglo-Saxon to the English of Chaucer and Wycliffe. It is written in verse, contains more than 10,000 lines, and—if we may judge from the numerous copies made of it—was very popular in the middle ages. The principal extant manuscripts are the Bodleian, the Cottonian, and the Harleian. The Chronicle was printed by Hearne, 2 vols. 1724; reprint 1810.

ROBERTS, *röb'értz*, BENJAMIN STONE: soldier: 1811—1875, Jan. 29; b. Manchester, Vt. He graduated at West Point 1835, and was assigned to the 1st dragoons; served on the frontier till 1839, when he resigned; and was a civil engineer 1839–42. He studied law, was admitted to the bar 1843, and practiced till 1846. He served in the Mexican war, and was brevetted lieut.col. He was on frontier duty 1848–61; was brevetted brig.gen. vols. 1861, July 16, and at the close of the war was brevetted brig.gen. U. S. A. He was inventor of the Roberts breech-loading rifle. He died at Washington.

ROB'ERTS, DAVID, R.A.: eminent painter: 1796, Oct. 24—1864, Nov. 25; b. Edinburgh. He began there as apprentice to a housepainter. His talent for art becoming obvious, he was set to study at the Trustees' Acad., and 1822 he went to London, where he found employment as a scene-painter at Drury Lane Theatre. In 1826, a picture of *Rouen Cathedral*, exhibited by R. at the Royal Acad., drew attention. In 1827 appeared his painting *St. Germain's at Amiens*. For seven years he was engaged in sketching in Spain, Africa, and the East; and the result was the splendid work (4 vols. 1839) *Sketches in the Holy Land, Syria, Idumæa, Arabia, Egypt, and Nubia*. The book contains 246 subjects, lithographed by Louis Hague, and illustrated by a historical commentary by Dr. Croly. It is the finest and most elaborate thing of the kind perhaps ever produced, and of itself it

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would have sufficed for a great reputation to the artist. In 1839 he was elected an associate of the Acad., and 1841 academician. In 1854 he was selected by the queen to paint the *Inauguration of the Great Exhibition* in 1851.

ROBERTS, ELLIS HENRY, LL.D.: printer, editor, and politician: b. Utica, N. Y.: 1827, Sep. 30. He graduated at Yale 1850; and 1851 became editor and proprietor of the *Utica Herald*. He was a member of the N. Y. assembly 1867; delegate to the republican national conventions of 1864, 68, and 76; member of congress 1871-75, and asst. treasurer of the United States at New York 1889-93; treasurer of the United States 1897. He is author of *Government Revenue* (1884), a series of lectures delivered at Cornell and Hamilton colleges; and *The Planting and Growth of the Empire State*, in the American Commonwealth series (1887).

ROBERTS, Gen. Sir FREDERICK SLEIGH (Lord ROBERTS of Candahar and Pretoria): b. Waterford, Ireland, 1832, Sep. 30. He was educated at Eton, Sandhurst, and Addiscombe, and entered the Brit. Indian army as a lieut. in the Bengal artil. 1851. His bravery in the Sepoy mutiny 1858 was conspicuous, and won for him the Victoria cross. He was asst. quartermaster-gen. in the Abyssinian campaign 1868 and in the Looshai expedition 1871-2, and in the Afghan campaign he was at various periods commander of the Kuram field-force and commander-in-chief of the whole army in Afghanistan. After the massacre of the Brit. embassy in Cabul, he reoccupied the city, and held it (1879-80) till he withdrew with a picked force of 9,000 men to relieve Gen. Primrose's garrison at Candahar. He raised the siege of Candahar, and gave Ayoob Khan a crushing defeat. In 1881, Feb., he was appointed commander of the troops in Natal and the Transvaal; 1881-85 commanded in the Madras Presidency; 1886, Oct., commanded the Burmese expedition; and from 1885 to '93 was commander-in-chief in India. In 1895 he was appointed field marshal and commander of the forces in Ireland. He took command of the forces in the South African campaign in 1899, relieved Kimberley, and by other brilliant successes changed the aspect of affairs. In 1900 he was made commander-in-chief of the British army. He was created G.C.B. and a baronet 1880 for the relief of Candahar; promoted lieut.gen. 1883; elevated to the peerage as Baron R. of Candahar and Waterford 1892, Jan. 1; created an earl 1901, also receiving the Order of the Garter.

ROBERTSON, FREDERICK WILLIAM, M.A.: brilliant and powerful preacher in the Church of England: 1816, Feb. 3—1853, Aug. 15; b. London; son of a capt. in the Royal Artillery. At the age of nine, he was sent to the grammar-school of Beverley, in Yorkshire; and after a few years, he accompanied his parents to the continent, where he became proficient in French. In 1832, he entered the rector's class at the Edinburgh Acad.; and

1833 proceeded to the Edinburgh Univ. His intended profession originally was the bar, but the study of law did not interest him, and he would gladly have become a soldier, for he always felt (as he afterward confessed) 'an unutterable admiration of heroic daring.' His name was placed on the list of the 3d Dragoons, then in India, and he gave two years' study to preparing himself for a military life; but certain difficulties delayed his commission, and R., in obedience to the wish of his father, matriculated at Brasenose College, Oxford, 1836, to study for the ministry, two weeks before his commission reached him. His life had all along been marked by singular purity and depth of religious feeling; hence his new career occasioned him no regret, but brought rather a high resolve to be worthy of his calling. At Oxford, he committed to memory the entire New Testament both in English and in Greek. His views then were moderately Calvinistic: the Tractarian movement did not attract him. His first appointment was to the curacy of St. Maurice and St. Mary Calendar, but his health failed in the course of a year, partly because of the injurious degree to which he had carried devotional asceticism; and he was compelled to visit the continent. In Switzerland he met and married a daughter of Sir George William Denys, Bart. On his return to England, he was for a time curate to the incumbent of Christ Church, Cheltenham; and there, having become aware of disappointment in the practical results of the strict theological system then known by the partizan name 'evangelicalism' (a different usage from the present of that term), he passed through a mental crisis terrific to his sensitive soul, whose result was an 'entire change in the basis of his theological science.' Of this period he wrote—'The one great certainty to which in the midst of the darkest doubt I never ceased to cling [was] the entire symmetry and loveliness and the unequalled nobleness of the humanity of the Son of Man.' From this fixed point he gradually built his creed again, and came to rest in a simple, strong, and charitable Christian faith. In the beginning of 1847, he removed to St. Ebbes, Oxford, and was beginning to attract the notice of the undergraduates at Oxford, when after two months he accepted the charge of Trinity Chapel, Brighton. For six years he continued to preach sermons, the like of which, for blending of delicacy and strength of thought, poetic beauty and homely lucidity of speech, had perhaps never been heard before in England. His sermons (of which four series have been published) have attained immense popularity and a very large circulation. The first series was published 1855 (repeated editions since). R.'s *Expository Lectures on St. Paul's Epistle to the Corinthians* appeared 1859. His *Lectures and Addresses on Literary and Social Topics* contain passages of faultless beauty and refinement. A good biography, with letters, was published 1865 by the Rev. Stopford A. Brooke (repeated editions).

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ROBERTSON, JOSEPH, LL.D.: most accomplished Scottish antiquary of the 19th c.: 1810, May 17—1866, Dec. 13; b. Aberdeen. He was educated at the Marischal College. The law was his intended profession, but he early turned to literature, especially to Scottish history and antiquities. He went to reside in Edinburgh, and later (1839) in Aberdeen as editor of the *Aberdeen Constitutional* newspaper; and in 1843 went to Glasgow as editor of the *Glasgow Constitutional* newspaper. In 1849 he returned to Edinburgh, to edit the *Edinburgh Evening Courant*. In 1853 he was appointed to the office now known as that of Curator of the Historical Dept. of the Register-house at Edinburgh; and projected a series of works connected with the history of Scotland, similar to those in England under direction of the master of the rolls: of this series several vols. have appeared. During his years of editorial labor he produced numerous compilations, and original works of great importance to Scottish archeology: among these are histories of various shires; an article on Scottish Abbeys and Cathedrals (*Quarterly Review*, 1849, June)—a text-book on that subject; numerous articles for *Chambers's Encyclopædia*; and a valuable compilation, with preface, giving information on many of the controversies connected with the life and reign of Mary Queen of Scots. The last and most important of R.'s works was *Concilia Scotiæ* (2 vols. 1866) for the Bannatyne Club, which has done for the Scottish Church that which Archdeacon Wilkins did for the Church of England in *Concilia Magnæ Britanniciæ et Hiberniæ*. It contains the statutes of all the Scottish councils, provincial or diocesan, from the earliest period to the Reformation, printed carefully from the best authorities; and the Preface, which occupies the greater part of the first vol., is a learned and authentic history of everything bearing on the subject. No literary man of his time was held in higher esteem.

ROBERTSON, WILLIAM: historian: 1721, Sep. 19—1793, June 11; b. in the county of Edinburgh, Scotland, and in the parish of Borthwick, of which his father was minister. He went to school at Dalkeith, a few miles from his home; but 1733, his father's appointment to a charge in Edinburgh gave him the opportunity of attending school and afterward the univ. there. He was licensed as a preacher in the Church of Scotland 1741; and 1743 was ordained to the parish of Gladsmuir, where the battle of Prestonpans was to be fought two years afterward. In 'the '45,' he showed his zeal for the govt. cause by joining a body of volunteers in Edinburgh; and when the majority of his comrades saw that it was useless for them to attempt to defend the town, he, with a few whom he had infected with his ardor, went to offer their services to Sir John Cope, but the offer was declined. R. afterward became a leader in what was called 'the Moderate' side in the ecclesiastical courts; and 1758 was promoted to one of the Edinburgh charges, where he had increased opportunities of in-

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fluence. In 1759, he published his famous *History of Scotland*. He avowedly passed over the earlier periods, speaking of them as 'dark and fabulous,' which no doubt they were in the hands of those who had treated them; but it may be regretted that R. did not bring his acuteness to bear on the materials for their elucidation. In 1762, he was made principal of the Univ. of Edinburgh. In 1769, he published *History of the Reign of the Emperor Charles V.*, to which he prefixed a *View of the State of Society in Europe from the Subversion of the Roman Empire to the Beginning of the Sixteenth Century*. This is the most valuable of his works. The field has been often since traversed by authors who have discovered much new material, but their use of it has become a sort of tribute to the natural sagacity of Robertson. His *History of America* was published 1777. These works are admirable for their elegant and vigorous style. He was a genial man, with a large circle of friends. He had great conversational powers, which he was not averse to display. Interesting notices of his early life are in the autobiography of his friend Dr. Carlyle; and a sketch of his closing years is in Lord Cockburn's *Memorials of His Life and Times*.

ROBESPIERRE, *ro'bés-pēr*, F. *ro-bés-pe-är'*, MAXIMILIEN MARIE ISIDORE DE: 1758, May 6—1794, July 28; b. Arras, where his father was an unsuccessful advocate. Having distinguished himself at the college of his native place, he was sent, through the influence of a canon of the cathedral of Arras, to complete his education in Paris, at the College of Louis le Grand; where, by singular chance, he was fellow-student with Fréron and Camille Desmoulins. In his studies, he was noted for diligence, regularity, and intelligence; and on completion of his course at college, he studied jurisprudence, and after some years returned to Arras to follow the profession of his father. In this his success was decided; and previous to the commencement of his more public career, he had gained considerable local note. While sedulously attending to his professional duties, he cultivated literature, not wholly without distinction; and 1783 became a member of the Acad. of Arras. Of the verses which at this time he seems to have been fond of writing, some curious fragments are preserved. Having, it is said, in discharge of his duty as member of the criminal court, been obliged to condemn a culprit to death, he resigned his situation on a point of conscientious objection to the barbarity of capital punishment—an incident piquant in its contrast with subsequent portions of his history. On the memorable convocation of the states-general 1789, he had local influence sufficient to secure his election as one of the deputies of the *tiers-état*, in which capacity he immediately repaired to Versailles. In the assembly he was for some time of little account; but gradually he made for himself a position, and nice observers noted in him a quality of fanatical earnestness and conviction,

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In virtue of which they surmised for him a great career. 'This man,' said Mirabeau in particular, 'will go far, for he believes every word he says.' (*Cet homme ira loin, car il croit tout ce qu'il dit.*) Though in the constituent assembly he spoke frequently, and—despite the disadvantages of a mean person, a harsh, shrill voice, and an ungainly manner—always with increasing acceptance, it was outside as a popular demagogue and leader in the famous Jacobin Club that his chief activity was exerted; and in this field his influence speedily became immense. After the death of Mirabeau, whose giant figure, while he lived, seemed to dwarf all meaner men, his importance became more and more recognized; and thenceforward till his death, his biography is in effect the history of the revolution. 1791, May, he proposed and carried the decree by which members of the assembly were excluded from a place in the legislature which followed; a measure obviously disastrous, as lowering the quality of the assembly, and more and more insuring its subjection to the Jacobins, of whom R. was now the favorite. His early aversion to capital punishment has been spoken of; and it is curious enough to be noted that now, May 30, he delivered an oration against it in the Assembly, denouncing it as 'base assassination.' On the dissolution of the constituent assembly 1791, Oct., R., now famous, revisited his native town, where he was received with enthusiasm; an escort of the national guard did honor to his entrance, and a general illumination of the place testified the admiration of the citizens for their deputy. After a stay of seven weeks, he returned to Paris, and resumed his activity as a leader of the Jacobin Club. In the *émeute* of August 10 following, by which the king was dethroned, he took no prominent part; and though his complicity is suspected in the September massacres which ensued, no distinct share in the infamy has ever yet been proved against him. To the national convention, which was now formed, he was returned at the head of the Paris deputies; and as recognized chief of the extreme party called the Mountain (q.v.), he was one of the main agents in procuring the execution of the king 1792, Dec. In the following year occurred his final struggle with the Girondists, who, recoiling in alarm from the extreme to which they saw R. tending, had twice before attacked him with a view to compass his destruction, and the chief men among whom he now triumphantly sent to the scaffold. The period of 'the Terror' followed: Marie Antoinette and the infamous Duke of Orleans were the first victims; Pétion, Danton, and Camille Desmoulins were next beheaded, on a suspicion of favoring a reactionary policy; and for months, under the so-called Committee of Public Safety, Paris became the scene of an indiscriminate *quasi-judicial* slaughter, in which thousands of lives were sacrificed. With these enormous atrocities, the name of R., with those of his friends, Couthon and St. Just, remains peculiarly asso-

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ciated. In the midst of the horror, took place 1794, June 8, that strange *Fête de l'Être Suprême*, in which, in the name of the Republic, the existence of a Deity was decreed—a day of triumph for R., who, conspicuous as the first man in France, presided at the solemn mummery. But the end was near; men were weary of 'the Terror,' and the general sense of insecurity that it induced; R. had many enemies; in particular, the numerous friends of Danton were eager to avenge his death; a conspiracy was organized against 'the tyrant,' as he was now called, and after a fierce tumult in the convention, his arrest was accomplished. A rescue by the populace followed, but he lacked the courage and promptitude to turn his opportunity to account; while he hesitated, his enemies acted, and 1794, July, he closed his career on the scaffold to which he had sent so many others.

Though without great and heroic qualities, R. can scarcely have been the mean and contemptible creature that he has frequently been represented. The instant effect of his oratory we know; and even as read, his speeches command respect for his mental power. The subtlest practical tact and judgment he must plainly have possessed; and though timid in his own person, he was dexterous to appropriate the results obtained by the boldness of others. In principle, he was severe and consistent; and the title of 'Incorruptible,' which he early acquired, seems throughout to have been thoroughly deserved. In private life, he was amiable; and though he waded to his public ends through blood, he had not the savage joy in the shedding of it which it has been common to attribute to him. He was callous, not actively cruel; and during the time of 'the Terror,' it is simply the truth, that he was rather reluctantly acquiescent, than active in the atrocities for which he has since been held above all others responsible. 'Death—always death!' he is said to have frequently exclaimed in private, 'and the scoundrels throw it all on me! What a memory shall I leave behind me, if this lasts! Life is a burden to me.' For a candid view of his character on this and its other sides, see the work by G. H. Lewes—*Life of Maximilien Robespierre, with Extracts from his Unpublished Correspondence* (London, Chapman and Hall 1849). See also Histories of Thiers, Mignet, Carlyle, Michelet, Louis Blanc; and Ernest Hamel's *Vie de Robespierre* (Par. 1865).

ROBIN—ROBIN GOODFELLOW.

ROBIN, n. *rōb'in* [from *Robin*, the familiar corruption of *Robert*]: one of the most familiar of wild birds, called in Britain *robin-redbreast* (see REDBREAST), of family *Erythacinæ*, and sometimes given as Blue Robin to the Bluebird (q.v.) in America. It is in America the usual name also of a species of Thrush (q.v.), *Turdus migratorius*, of family *Turdidæ*, widely distributed from Mexico to lat. 60° n. The Amer. R. is nearly twice the size of the redbreast, olive gray, top and sides of the head black, chin and throat white with black streaks, under parts chestnut brown. It remains during winter in sheltered places, even as far n. as New England, but is generally a bird of passage. Many arrive in New England before the snow has disappeared. Large flocks are seen in the southern states in winter, where great numbers are killed for the table, the markets being often glutted with them. In Mass., the law forbids the killing of this bird at any season of the year. Its nest is often built near houses. Two broods are produced in the year. The robin is a lively bird, and a general favorite in the northern United States. It is often kept as a cage-bird, is very gentle and easily tamed, and has a pleasing song, a cheery whistling, enlivening in the early morning hours, but less varied and melodious than that of others of the thrush family. The R. is sometimes persecuted for its greedy attacks on cherries and small fruits, but its musical and insectivorous services may well be repaid by planting more fruit for its benefit.

ROBIN GOODFELLOW, *rōb'in gūd'fēl-lō*: name in old English superstition of a domestic spirit or fairy, analogous to the *Nisse God-dreng* of Scandinavia, the *Knecht Ruprecht*, i.e., Robin, of Germany, and the *Brownie* of Scotland. Roguery and sportiveness were the characteristics of this spirit; and in the reign of Elizabeth, his existence was so generally credited, that he was 'famozed in every old wives chronicle for his mad merrye pranks.' From the popular belief in this spirit Shakespeare's *Puck* was derived. From the early ballads concerning R., we learn that he was the offspring of a 'proper young wench by a hee-fairy,' who was no less a person than Oberon, king of Fairyland. In his youth, R. displayed such mischievous tricks that his mother found it necessary to promise him a whipping. He ran away from home, and engaged with a tailor, from whom also he eloped. When tired, he sat down, and fell asleep, and in his sleep he had a vision of fairies. On awaking, he found lying beside him a scroll, evidently left by his father, which, in verses written in letters of gold, informed him that he should have anything he wished for, and also the power of turning himself into various shapes; but he was to harm none but knaves and queans, and was to 'love those that honest be, and help them in necessity.'

As a specimen of his 'mad pranks,' R. went one day to a wedding as a fiddler, and was a welcome guest; but in the evening 'then hee beganne to play his merry trickes in this manner. First, hee put out the candles, and then being darke, hee stricke the men good boxes on the eares;

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they, thinking it had beene those that did sit next them, fell a-fighting one with the other, so that there was not one of them but had either a broken head or a bloody nose. At this, Robin laughed heartily. The women did not scape him, for the handsomest he kissed: the others he pinched, and made them scratch one the other, as if they had beene cats. Candles being lighted againe, they all were friends, and fell againe to dancing, and after to supper. Supper being ended, a great posset was brought forth. At this, Robin's teeth did water, for it looked so lovely that hee could not keepe from it. To attaine to his wish, he did turne himself into a beare: both men and women seeing a beare amongst them, ranne away, and left the whole posset to Robin. He quickly made an end of it, and went away without his money, for the sport hee had was better to him than any money whatsoever.'

Although R. was a sprite particularly fond of disconcerting and disturbing domestic peace, he was believed to be easily propitiated. If a bowl of milk, or curds and cream, were duly laid out for him, he would at midnight perform for the servants many household duties. If this were neglected, R. would revenge himself by pinching and otherwise annoying the inmates. The following passage in Shakespeare's *Midsummer Night's Dream* fully describes R.'s peculiarities:

Either I mistake your shape and making quite,
Or else you are that shrewd and knavish sprite
Call'd Robin Goodfellow: are you not he
That frights the maidens of the villagery;
Skims milk, and sometimes labors in the quern,
And bootless makes the breathless housewife churn;
And sometimes makes the drink to bear no barm;
Misleads night-wanderers, laughing at their harm?
Those that Hobgoblin call you, and sweet Puck,
You do their work, and they shall have good luck.

The *Mad Pranks and Merry Jestes of Robin Goodfellow* were reprinted from the ed. of 1628, by the Percy Soc, 1841.

ROBIN HOOD, see HOOD, ROBIN.

ROBINIA, *rō-bin'ī a*: genus of trees and shrubs of nat. order *Leguminosæ*, suborder *Papilionaceæ*, having a 4-fid calyx, with the upper segment divided into two; stamens, nine united, and one free; the pod long and many-seeded. The species are widely diffused over the world. The most important is *R. pseudacacia*, a N. American tree, called sometimes the *Locust Tree* (q.v.), known also as the *False Acacia*, or *Thorn Acacia*, often simply *Acacia*. It was raised from seed in France by John Robin, about 1600, and gradually spread over warmer parts of Europe and s. Siberia. Its quick growth, its spines, and its property of submitting to be clipped into any form, make it suitable for hedges. In s. Europe, it thrives as a timber tree, but in more northern regions, it suffers from frost in severe winters. The wood is compact, hard, and takes a fine polish; for many purposes, it is scarcely inferior to oak, which it rivals in toughness and strength. It does not readily rot in water, and is used for ship-building; in many of the states it has been largely employed for fence posts,

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on account of its durability. For this purpose, as well as for shade, it was extensively planted on the prairies, but was temporarily destroyed and has been continuously injured by the locust-boring beetle, *clytus robinia*, which swept westward like a great wave, arriving in central Iowa 1867, and so curiously resembles another and harmless species that the two are hardly distinguishable. The tree is ornamental, and of rapid growth. It is found wild in abundance from the Alleghanies to the western plains, but not indigenous n. of Penn., nor near the coast. Its leaves are pinnate, with 9-13 thin and smooth leaflets. The flowers are fragrant and white, in large pendulous racemes. The roots throw up many suckers; and are very sweet, affording an extract resembling licorice. An agreeable syrup is also made from the flowers.—*R. viscosa* is a smaller tree, but even more ornamental, a native of s.w. parts of the Alleghany Mountains: it has scentless flowers, white tinged with pink, and is planted for ornament, with the common name Clammy Locust: the young branches are viscid.—The ROSE ACACIA (*R. hispida*) is a native of the s.w. ranges of the Alleghanies, a highly ornamental shrub, with hispid branches, and large rose-colored scentless flowers. Its suckering habit is avoided by grafting it on the common locust, this method also giving height and increased beauty.—*R. Caragana*, native of s.e. Europe, is planted for hedges at St. Petersburg, where it spreads like an indigenous plant.

ROBINS, *rôb'inz*, BENJAMIN: English mathematician and artillerist: 1707-51, July 29; b. Bath; of parents who belonged to the Society of Friends, and were too poor to give their son a good education. R., however, having obtained a little instruction in mathematics, prosecuted this science with great zest, acquired a good elementary knowledge of it, and established himself at London as a teacher of mathematics, still pursuing various studies. He then began the series of experiments on the resisting force of the air to projectiles, which gained him celebrity, varying his labors by the study of fortification, in which pursuit he visited many of the most celebrated works of this class in Flanders. In 1734 he demolished, in a treatise *A Discourse concerning the Certainty of Sir I. Newton's Method of Fluxions*, the objections brought by the renowned Berkeley, Bp. of Cloyne, against Newton's principle of ultimate ratios. He published several other mathematical works. His great and valuable work, the *New Principles of Gunnery*, to whose preparation he gave enormous labor, appeared 1742, and produced a revolution in gunnery. Previous to R.'s time, it had never been attempted to estimate the velocity of balls otherwise than by the ordinary parabolic theory of Galileo (see PROJECTILES). R. suggested two methods for obtaining this information—(1) by finding experimentally the initial force of fired gunpowder confined to a certain space, and the law of the decrease of this force as the space increased; thence calculating the velocity which would be imparted to a body of given weight: (2) by the *Ballistic Pendulum*. The second method has been found

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in practice preferable for accuracy. R., in the course of his experiments, also discovered and explained the curvilinear deflection of a ball from a vertical plane. Some of his opinions having been questioned in *Philosophical Transactions*, R. ably replied and wrote several dissertations on the experiments made by order of the Royal Soc. 1746-7, for which he received their annual gold medal. Pamphlets in which he ably defended the policy of the govt. caused his appointment 1749 as 'Engineer-in-general to the E. India Co. ;' but his first undertaking, the planning of the defenses of Madras, was no sooner accomplished than he was seized with a fever, which ultimately occasioned his death.

ROBINSON, *rōb'in-son*, BEVERLY: 1723-92; b. Va.; son of John R. He was in the English army at the assault on Quebec, opposed the movement of the colonies to secure independence, removed to New York, raised and became col. of a regt. of loyalists, was prominent in diplomatic efforts to uphold the royal cause, and was closely connected with the treason of Benedict Arnold. After the war he removed to New Brunswick, was elected to the first colonial council, but declined to serve, and afterward settled in England. His wife, a dau. of Frederick Phillipse, of N. Y., was very wealthy; but, on account of her husband's adherence to the royalists, her property was confiscated by the state. This loss was compensated by a gift from the British govt. to R. of about \$85,000. He died in England.

ROBINSON, CHARLES SEYMOUR, D.D., LL.D.: b. Bennington, Vt., 1829, Mar. 31. He graduated from Williams College 1849; studied theology at New York and Princeton; became pastor of a Presb. church at Troy, N. Y., 1855; accepted the pastorate of the First Presb. Chh., Brooklyn, 1860; was in charge of the American Chapel in Paris 1868-70; and pastor of the Madison Ave. Presb. Church, New York, 1870-87, serving with great earnestness and zeal in its establishment, to which also he made large pecuniary contribution. In 1889 he established in New York a weekly religious paper, *Every Thursday*; and 1891 became pastor of the Thirteenth Street Presb. Church in that city. He has published *Sermons*, of which several editions have been called for; several hymn and tune books for Church and Sunday-school use, which have found great acceptance in various denominations, and have had enormous sale. His mind has great fertility, and his style is unusually vivid and picturesque. Among his hymn-books are *Songs for the Sanctuary* (1865); *Spiritual Songs for Social Meetings* (1881); *Laudes Domini* (1884); and among his other works, *The Pharaohs of the Bondage and the Exodus* (1887); and *Simon Peter, his Life and Times*, 2 vols. (1888).

ROBINSON, EDWARD, D.D., LL.D.: philologist and biblical scholar: 1794, Apr. 10—1863, Jan. 27; b. Southington, Connecticut. He graduated at Hamilton College, Clinton, N. Y., 1816, where he was engaged as tutor, and in further studies until 1821, when he went to Andover, Mass., to superintend the printing of an ed. of the first six books of the *Iliad*. Previous to this he had married, and become a

widower. He studied Hebrew with Prof. Moses Stuart of Andover Theol. Seminary, and became his assistant professor. In 1826 he began four years' travel and study in Europe, where he married Miss Therese A. L. von Jakob daughter of a prof. at Halle. Returning 1830 to Andover, he was appointed extraordinary prof. of sacred literature, and librarian in the seminary. He resigned 1833, removed to Boston, and 1837 was appointed prof. of Biblical literature in the Union Theol. Seminary, New York. At this period, he made, in company with the Rev. Eli Smith, an extensive survey of Palestine, of which he gave an account in his admirable work, *Biblical Researches in Palestine and Adjacent Countries* (3 vols. 8vo, Halle, London, and Boston, 1841)—which will always remain a standard work on the subject. He entered on the active duties of his professorship 1840; and 1852 made a second visit to Palestine, of which he published an account 1856. His other works are a translation of Buttman's *Greek Grammar*, 1832 and 50; *Greek and English Lexicon of the New Testament*, 1836 and 50; *Harmony of the Four Gospels*, in Greek 1845, and in English 1846. He was editor of the *Biblical Repository*, *Bibliotheca Sacra*, Calmet's *Bible Dictionary*, a translation of Gesenius's *Hebrew Lexicon*, etc.; and was an active member of geographical, oriental, and ethnological societies.

ROB'INSON, EZEKIEL GILMAN, D.D., LL.D.: 1815, Mar. 23—1894, June 13: educator; b. Attleborough, Mass.; graduated from Brown Univ. 1838; studied theology at Newton, Mass.; was pastor of a Bapt. church at Norfolk, Va., 1842-45, and part of this time was chaplain of the Univ. of Virginia; preached in Cambridge, Mass., a few months; and 1846 was called to a professorship in the Western Theol. Seminary (Bapt). After a pastorate in Cincinnati 1850-53, he became prof. in the Rochester Theol. Seminary (Bapt.), was pres. of that institution 1860-72, and pres. of Brown Univ. 1872-89. He edited the *Christian Review* for several years, has published sermons, addresses, and articles in magazines, and *Yale Lectures on Preaching* (1883); and *Principles and Practice of Morality* (1888).

ROB'INSON, HENRY CRABB; 1775, May 13—1867, Feb. 5; b. England. After studying law in London, he went to the German universities, where he spent five years in the study of literature and philosophy, and became intimately acquainted with Schiller, Goethe, and other great German poets and scholars. In the peninsular campaign 1808, he was in Spain as correspondent of the *London Times*, for which paper he afterward became a literary critic and editorial writer. He practiced law 1813-28 with great success, and accumulated a fortune. He was intimate with several prominent literary men, including Wordsworth, Coleridge, Southey, and Lamb, was one of the founders of the Flaxman Gallery, and was interested in various literary institutions. His *Diary and Correspondence*, pub. a few months after his death, had wide circulation. He died at London.

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ROBINSON, JAMES SIDNEY, soldier: b. Ohio, 1827, Oct. 14. He became a printer, 1846 began the publication of the *Kenton Republican*, of which he was editor for many years, and was prominent in the early history of the republican party in Ohio. He entered the army 1861 as a private, but was soon promoted capt., was in the Shenandoah valley with Gen. Fremont, at the second battle of Bull Run, Cedar Mountain, Chancellorsville, was badly wounded at Gettysburg, and led a brigade in the Atlanta campaign. By various promotions he reached the rank of brig.gen., he was brevetted maj.gen.; and 1865, Aug. 31, was mustered out of the service. He was commissioner of railroads and telegraphs for Ohio, was member of congress 1881-85, and sec. of state of Ohio four years from 1885. He d. 1892, Jan. 14.

ROBINSON, JOHN: English pastor of the Plymouth Pilgrims before their emigration: 1575-1625, Mar. 11; b. probably near Scrooby, Nottinghamshire; entered Corpus Christ Coll., Cambridge 1592, becoming fellow 1599. Officiating first in the Established Church near Yarmouth in Norfolk, he became minister to a dissenting church at Norwich 1602. Although Protestantism was confirmed under James I, who succeeded to the throne the year following, yet dissenters from the Church of England were oppressed; and the Norwich congregation, after arrest and detention, emigrated to Amsterdam 1608, and the next year moved to Leyden, where they remained 11 years, and, by accessions from exiles, reached the number of 300. Of this band John Robinson continued to be pastor, highly regarded for piety and learning by the Leyden clergy and univ. professors, having with one of the latter, Episcopius, a learned controversy on free-will. Abp. Laud found means through the Dutch govt. to molest the pastor and flock, who therefore resolved to migrate to the new world, and gained a covert approval therefor from King James. In 1620, at a day of fasting and prayer, and a sermon from the pastor (his text I Sam. xxiii. 3-4), it was resolved that a part of the congregation should go, to prepare the way for the rest, Elder Brewster to be leader. When embarking at Delftshaven, June 21, their pastor knelt with them on the deck, commending them to God. On reaching England, one of the vessels in which they sailed from Southampton proved unseaworthy, and both vessels put into Dartmouth; the number was reduced from 120 to 101, who, after being obliged to put into Plymouth for repairs, voyaged to America in the other vessel, the *Mayflower*. John Robinson had charged them to be faithful; and their subsequent history in the new Plymouth bore fruits of his teaching and of the influence of his singularly pure and noble character. He expected to follow, but died before consent was obtained from the English mercantile company who were patrons of the enterprise. His sons, John and Isaac, and the rest of the church, came to Plymouth subsequently. Among his published writings were *Justification of Separation from the Church of England* (1610); *Of Religious Communion* (1614); *Apologia Justa et Necessaria*

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(1619—transl. 1644); *Defense of the Doctrine Propounded by the Synod of Dort* (1624); *Essays or Observations, Divine and Moral* (1628); *Treatise of the Lawfulness of Learning of the Ministers of the Church of England* (1634). His complete works, with memoir, were published by Robert Ashton 1851, London and Boston.

ROBINSON, JOHN CLEVELAND: soldier: b. Binghamton, N. Y., 1817, Apr. 10. He took a partial course of study at West Point, studied law, became 2d lieut. of infantry 1839, served in Texas 1845, and won distinction in the Mexican war. He was engaged in the Seminole war, in the expedition to Utah, held Fort McHenry near Baltimore for the Union 1861; and after serving in Mich. and O. was connected with the Army of the Potomac. He was prominent in the battles of Fredericksburg, Gettysburg, and the Wilderness, and while leading a brilliant charge at Spottsylvania Court-house received a wound which resulted in the loss of one of his legs and disabled him for service in the field. He was mustered out of the vol. service 1866, and afterward commanded various departments. He had been often brevetted and promoted; and 1869 was retired with the rank of maj. gen. He was elected lieut. govt. of N. Y., 1872, was commander-in-chief of the Grand Army of the Republic 1877-8, and 1887, was elected pres. of the Soc. of the Army of the Potomac.

ROBINSON, THERESE ALBERTINE LOUISE (JAKOB): 1797, Jan. 26—1870; b. Halle, Germany; daughter of Prof. von Jakob, and wife of Edward R., D.D. She was known to the world of letters as 'Talvi,' a name composed of her initials. In 1807 she accompanied her father to Russia, where he had an appointment as prof. in the Univ. of Kharkov. In 1810 they removed to St. Petersburg, where she learned modern languages and history. In 1816 they returned to Halle, and there she studied Latin, and wrote a volume of tales, published 1825 under the title *Psyche*; and under the signature of 'Ernest Berthold,' translations of Sir Walter Scott's *Black Dwarf* and *Old Mortality*, and also two volumes of Servian popular songs—*Volkslieder der Serben*. In 1828 she was married to Prof. Robinson, and 1830 accompanied him to America, where she studied the languages of the aborigines, translated Pickering's *Indian Tongues* into German, and contributed a *Historical View of the Languages and Literature of the Slavic Nations* to the *Biblical Repository*. In 1837 she accompanied her husband back to Germany, and published *An Essay on the Historical Characteristics of the Popular Songs of the German Nations*, *The Poems of Ossian not Genuine*, a *History of Captain John Smith*, in German, also *The Colonization of New England*, translated into English by the younger Hazlitt. Returning to New York, she wrote in English, *Heloise, or the Unrevealed Secret*; *Life's Discipline, a Tale of the Annals of Hungary*; *The Exiles*; and numerous contributions to German and American periodicals. She died at Hamburg.

ROBISON—ROB ROY.

ROBISON, *rŏb'ĩ-son*, JOHN: Scotch natural philosopher: 1739-1805, Jan. 28; b. Boghall, parish of Baldernock, Stirlingshire. He took his degree at the Univ. of Glasgow 1756. After two sea-voyages, he went to Glasgow to begin divinity study. But his strong predilection for physical science led him to pursue its study with such success that when Black was transferred to the Univ. of Edinburgh 1766, R. succeeded him. In 1770 his old friend, Admiral Knowles, having been appointed by the Czarina Catharine II. to reform the shipbuilding and naval administration of Russia in the position of pres. of the Russian board of admiralty, chose R. to accompany him as sec. After several years in Russia, where he received from the govt. much honor and profit, R., refusing flattering offers to remain, accepted 1774 the chair of nat. philos. in Edinburgh. R.'s talents and acquirements were of a high order; but his diction was too rapid, and he unfortunately disapproved of experiments. His contributions to the *Encyclopædia Britannica* of that time were the means of elevating that work to the rank of a trustworthy book of scientific reference. He edited and published various works on chemistry and mechanical science.

ROB ROY, popular name of ROBERT M'GREGOR: celebrated Scottish outlaw, whose adventures entitle him to be considered the Robin Hood of Scotland: b. between 1657 and 60, d. abt. 1738; second son of Donald M'Gregor of Glengyle, by a daughter of Campbell of Glenlyon. R. R., in consequence of the outlawry 1660 of the clan M'Gregor of the Scottish parliament, assumed the name of Campbell. In Gaelic, *Roy* signifies *red*, and was applied to him from his ruddy complexion and color of hair. R. R. received a fair education, and in youth was distinguished for skill in use of the broadsword, in which the uncommon length of his arms was an advantage. It was said that he could, without stooping, tie the garters of his Highland hose, two inches below the knee. Like many Highland proprietors of the period, R. R. dealt in grazing and rearing black-cattle for the English market. He took a tract of land for this purpose in Balquhiddy; but his herds were so often stolen by banditti from Inverness, Ross, and Sutherland, that, to protect himself, he maintained a party of armed men, to which may be attributed his later war-like habits. He also protected his neighbors' flocks, in return for which he levied a tax, which went under the name 'black mail.' R. R. married a daughter of the laird of Glenfalloch, shortly after which he acquired the estates of Craig Royston and Inversnaid, near the head of Loch Lomond. In consequence of losses in unsuccessful speculations in cattle, for which he had borrowed money from the Duke of Montrose, R. R. lost his estates, which were seized by the duke for debt. R. R., rendered desperate by his misfortunes, collected about 20 followers, and made open war on the duke, sweeping away all the cattle of a district and intercepting the rents of his tenants. That this could happen at so late a period, and in the immediate neighborhood of the garrisons of Stirling, Dumbarton, and Glasgow, ap-

ROBUST—ROCAMBOLE.

pears almost incredible; but R. R. had the protection of the Duke of Argyle and the respect of the country people, who gave him timely information of the designs of his enemies. Numberless stories are still current in the neighborhood of Loch Lomond and Loch Katrine of his hair-breadth escapes from capture by the troops. At one time a reward of £1,000 was offered for his head, in consequence of which he was obliged to take shelter in a cave at the base of Ben Lomond, on the banks of the lake, which had in former times afforded secure retreat to Robert the Bruce. Many instances have been recorded of his kindness to the poor, whose want he often supplied at the expense of the rich. R. R. was not the commonplace *cateran* that many people think him. He gave his sons a good education, and died peaceably in his bed. His funeral was attended by all the people of the district, except the partisans of his enemy, the Duke of Montrose. R. R.'s exploits have been immortalized by Sir Walter Scott in his novel *Rob Roy*, 1817. In the list of subscribers to Keith's *History of the Affairs of Church and State in Scotland*, 1734, there occurs the name 'Robert Macgregor, *alias* Rob Roy.' See Macleay's *Rob Roy* (1881); Millar's (1883).

ROBUST, a. *rō-bŭst'* [F. *robuste*—from L. *robustus*, hard, solid, strong—from *robur*, a very hard kind of oak, strength: It. *robusto*]: strong; hardy; vigorous; possessing perfect strength and vigor. ROBUST'LY, ad. -*lī*. ROBUST'NESS, n. -*nēs*, strength; vigor.—SYN. of 'robust': strong; sturdy; hale; stout; hearty; vigorous; sound; muscular; sinewy; lusty; coarse.

ROBUS'TI, JACOPO: see TINTORETTO.

ROBUSTIOUS, a. *rō-bŭst'yŭs* [L. *robustus* (see ROBUST)]: in *OE.*, and now *familiarly*, strong; vigorous; sinewy; boisterous; violent. ROBUST'IOUSLY, ad. -*lī*. ROBUST'IOUSNESS, n. -*yŭs-nēs*, quality of being robustious.

ROC, or Rock, n. *rōk*, or RUKH, *rūk* [Ar. *rukḥ*]: fabled monstrous bird in Arabian mythology, represented as 'able to truss an elephant' in its talons. It is enough to refer to the *Arabian Nights' Entertainments*, as to the size and power of the Roc. A belief in its existence prevailed throughout the middle ages, and it is noticed in many works of that period. The fables concerning the R. may have originated in exaggerated stories of some of the great eagles, or of the Lammergeier.

ROCAMBOLE, n. *rōk'am-bōl* [F. *rocamboles*; Ger. *rockenbollen*—from *rocken*, rye; *bolle*, a bulb]. (*Allium scorodoprasum*): plant of the same genus with garlic, onion, leek, etc., and nearly allied to garlic, which it resembles in its habit, though larger in all its parts. The upper part of the stem is in general spirally twisted before flowering. The root forms rounder cloves than those of garlic, and of much milder flavor; the umbels also are bulbiferous. R. has long been cultivated in kitchen-gardens, though not very common. It is a native of sandy soils in Denmark and other countries near the Baltic.

ROCCELLIC—ROCHDALE.

ROCCELLIC, a. *rök-sël'lik* [It. *rocca*, a rock, because the plant grows on rocks (see **ROCK** 1)]: name for a fatty acid obtained from the herb Archil (q.v.), the *Roccel'la tinctoriä*, ord. *Lichênēs*.

ROCHAMBEAU, *ro-shöng-bō'*, **JEAN BAPTISTE DONATIEN DE VIMEUR**, Comte DE: soldier: 1725, July 1—1807, May 10; b. Vendôme, France. He studied at the Jesuit College at Blois, intending to enter the priesthood, but on the death of his elder brother changed his plans, and 1742 entered the French army. He served in Bavaria and Bohemia, was rapidly promoted, and became famous for skill in drilling troops. In 1749 he became gov. of Vendôme, was in active military service in Minorca 1756, and in Germany 1758–61, reached the rank of lieut.gen. 1780, and was given command of the French troops which aided the American colonies in securing their independence. Congress thanked him for his efficient services, and presented him with two of the cannon which had been taken from the British, and Louis XVI. made him a knight of the Saint Esprit. Returning to France, he was gov. of Picardy and Artois, became field-marshal 1791, commanded the Army of the North, but became unpopular at the time of the revolution and barely escaped with his life. In 1804 he received the grand cross of the Legion of Honor from Napoleon, who also gave him a pension. His *Memoirs*, which he dictated, appeared in 2 vols. (1809), and were translated and pub. in London (1838). He died at Thoré, France.

ROCHDALE, *röch'däl*: thriving manufacturing town of Lancashire, England; market-town and parliamentary and municipal borough, in the valley of the Roche, and on both sides of that stream, 11 m. n.n.e. of Manchester, 200 m. n.w. of London by railway. The parish church, on an eminence, approached by a flight of steps, is a venerable edifice, dating from the 12th c., partly in the late Norman, partly in Perpendicular. The other public buildings comprise churches, chapels, and meeting-houses for the various dissenting sects. The new Town Hall, completed 1867, is a fine building in domestic Gothic. The public baths are the property of the corporation. Many improvements architectural and sanitary have been made in recent years. Still R. is beautiful only in site, and derives its importance wholly from its extensive and varied manufactures. The woolen manufacture, introduced by a colony of Flemings in the reign of Edward III., is prosperous and increasing. Blankets, baizes, kerseys, and other woolen fabrics are staple manufactures. Cotton goods also, especially calicoes, are largely manufactured. In the vicinity, coal is found, and flagstones, freestones, and slates are abundantly quarried. There is good general trade; there are several hat-factories, cotton-mills, machine-shops, iron and brass foundries, etc., weekly markets for woolen goods and grain, and fortnightly fairs for cattle. Commerce is facilitated by abundant means of communication. Pop. (1871) municipal borough, 44,559; (1891) 76,161; (1901) 83,112.

ROCHE—ROCHEFORT-SUR-MER.

ROCHE, a. n. *rōsh* [F. *roche*, a rock (see *Rock* 1)]: used in compounds, as *roche-alum*, often called *rock-alum*; alum deprived of part of its water of crystallization by heat. The name was formerly given to pure alum in mass; but is now applied to a particular variety found at Civita Vecchia, Italy. It is a kind of native alum, free from iron, but having a reddish color, from the soil in which it is found. It is called also Roman, and red alum. A factitious kind is now in general use, made of common alum reddened with Armenian bole.

ROCHEFORT-LUÇAY, *rosh-for'lüs ā'*, VICTOR HENRI, Comte DE: journalist and communist: b. Paris, 1830, Jan. 30. He studied medicine; secured a minor office under the govt. of Paris; and composed a number of plays, some of which became quite popular. In 1861 he became a journalist, and for several years was connected with the *Figaro*, but retired 1865 to prevent the prosecution of its proprietors by the govt. He founded the *Lanterne*, in which his attacks on the govt. were continued so violently as to lead to its suppression, but R. soon re-established it at Brussels. On his election to the chamber of deputies 1869, he returned to Paris and established *La Marseillaise*. Its attacks on the imperial family were so violent that R. was imprisoned; and his assistant, Victor Noir, was killed by Prince Pierre Bonaparte. He was released when the republic was proclaimed 1870, Sep. 4; and became a govt. officer; favored concessions to the Communists, founded 1871 the *Mot d'Ordre*, in which he came out strongly in favor of the Commune, and was elected a deputy to the national assembly. On the overthrow of the Commune he was sentenced to life imprisonment; was released a brief period to be married to the mother of his children, in order that they might be legitimatized; and 1873 was sent to New Caledonia, but soon escaped to San Francisco, whence he went to London, and afterward to Geneva where he remained till 1880, when he was allowed to return to Paris. He then established *L'Intransigéant*, a radical paper, in which he attacked the existing government. He designed to take part in the labor troubles in Belgium 1886, but was not allowed to enter the country. He was prominent in the political schemes of Gen. Boulanger, whom he accompanied to England 1889. In the latter year he removed to Brussels. He has discarded his various titles, and prefers to be known merely as Henri Rochefort.

ROCHEFORT-SUR-MER, *rosh-for'sür-mār*: important seaport and naval arsenal of France, dept. of Charente-Inférieure, on the right bank of the Charente, five m. from its mouth. It is surrounded by ramparts, and protected by forts at the mouth of the river; and is a modern, clean, well-built town. Few French towns can compare with R. for the number and importance of its public works. The harbor, one of the three largest in France, is deep enough to float large vessels at low water. R. has fine wharfs, extensive magazines, dock-yards, rope-walks, cannon foundries, and other establishments for manufacture and preservation of naval stores and marine apparatus of every

ROCHEFOUCAULD—ROCHELLE.

kind, including extensive bread and biscuit stores. The most celebrated of its many institutions are the **marine** hospital, founded 1787, with 1,240 beds for seamen, besides wards for invalided officers; the artillery and naval schools for every branch of the profession, and the general civil college. Its great convict-prison has been disused since 1852. In addition to the extensive trade arising from the special character of the place, R. is the centre of the commerce of the dept., and is largely engaged in colonial trade, in manufacture of brandy, and in building men-of-war, merchant-ships, steamers, and coasting-vessels. Pop. (1881) 26,022; (1886) 30,285; (1901) 36,458.

ROCHEFOUCAULD': see LAROCHEFOUCAULD.

ROCHELLE, LA, *lá ro-shěll'*: fortified seaport of France, cap. of the dept. of Charente-Inférieure; on an inlet of the Bay of Biscay formed by the islands Ré and Oleron, 300 m. s.w. of Paris by railway. Its little harbor, which consists of an outer tidal basin, and an inner wet dock, is surrounded by fine quays and commodious docks, close to which are the principal streets and squares. Many streets are regular and well built, with houses adorned with porticoes and balconies. The notable public buildings are the arsenal, palace, town-hall, exchange, and cathedral. Besides the fine promenade of the Place du Château, there are, outside the city walls, two extensive public gardens, La Promenade du Mail and the Champs de Mars. Ship-building is carried on, especially for the Newfoundland fishing trade; there is manufacture of coal, bricks, and cotton yarns, and there are numerous glass-works, sugar-refineries, and distilleries for preparation of brandy. Pop. (1881) 20,028; (1886) 21,591; (1901) 31,559.

R., known till the 12th c. under its Latin name *Rupella*, or Little Rock, of which its present name is the French translation, originated in a colony of serfs of Lower Poitou, who, fleeing from the persecution of their lord, settled on the rocky promontory between the ocean and the neighboring marshes, previously occupied by fishermen only, but which rapidly increased in importance under the new settlers. On the marriage of Eleanor of Aquitaine with Henry II. of England, R., as a part of her dowry, came into the possession of the English kings, by whom it was retained till 1224, when it was taken by the troops of the French king, Louis VIII.; and though it was ceded to England at the treaty of Bretigny 1360, in the subsequent wars it was retaken by France, under whose sway it has remained since 1372. As a stronghold of the Huguenot party, it underwent various attacks and sieges during the religious wars of the Henries, in the latter half of the 16th c.; and on its final and unconditional surrender to the royal troops in the time of Louis XIII., its old fortifications were destroyed, and new lines of defenses subsequently erected by the great Vauban.

ROCHELLE SALT—ROCHESTER.

ROCHELLE SALT, *rō-shĕl' sawlt*: popular name of sodio-potassic tartrate, $C_4H_4KN_2O_6 + 4H_2O$, known also as tartrate of soda and potash. It was discovered, 1672, by a Rochelle apothecary named Seignette. It occurs, when pure, in colorless transparent prisms, generally eight-sided; in taste it is mildly saline. It is prepared by neutralizing cream of tartar (KHC_4O_6) with sodium carbonate $N_2CO_3 + 10H_2O$. After a neutral solution has been obtained, it must be boiled and filtered, and the resulting fluid must be concentrated till a pellicle forms on the surface, when it must be set aside to crystallize.

This salt is a mild and efficient laxative, and less disagreeable to the taste than most of the saline purgatives. A heaping tea-spoonful, or more if found requisite, dissolved in eight or ten parts of water, may be a dose. A drachm of R. S. added to one of the ingredients of an effervescing draught (bicarbonate of soda or tartaric acid, e.g.), forms one of the varieties of Seidlitz powders.

ROCHE MOUTONNÉE, n. *rōsh mô-tŏn'nā* [F. *roche*, rock; *moutonnée*, frizzled, woolly—from *mouton*, a sheep]: the name given by French geologists to the projecting eminences of Alpine rocks, and of all glaciated districts (like those retaining features of the Glacial Period), that have been rounded and smoothed by glacier action, so called from their resemblance to sheep at rest.

ROCHESTER, *rōch'ēs-tēr*: city, cap. of Olmsted co., Minn.; on both sides of the s. fork of the Zumbro river, and on the Chicago and Northwestern railroads; 50 m. w. of the Mississippi river, 90 m. s.e. of St. Paul. The city is bisected by the river, which affords valuable water-power; is the centre of a rich grain region; has an imposing co. court-house, public library, high school, several grammar schools, and 11 churches; does a large trade in butter, cheese, eggs, and grain; and manufactures flour, machinery, ironware, pumps, and wagons. In 1902 there were 3 nat. banks (cap. \$200,000), and 4 wkly. periodicals. Pop. (1870) 3,953; (1880) 5,103; (1890) 5,313; (1900) 6,843.

ROCHESTER: city, Strafford co., N. H.; on the Boston and Maine, and the Portsmouth Great Falls and Conway r.rs.; the terminus of the Nashua and Rochester, and the Portland and Rochester r.rs.; near the Cocheco river, at Salmon Falls, 10 m. n.w. of Dover and 78 m. n. of Boston. It has extensive manufactories of shoes, blankets, and flannels, a library founded 1792, 3 banks, a weekly newspaper and a flourishing high school. The national bank has a capital of \$150,000.—Pop. (1880) 5,784; (1890) 7,396; (1900) 8,466.

ROCHESTER.

ROCHESTER: city, cap. of Monroe co., N. Y.; on both sides of the Genesee river, and on the Buffalo Rochester and Pittsburgh, the Erie, the New York Central and Hudson River, the Rochester and Lake Ontario, the Rome Watertown and Ogdensburg, the Rochester and Glen Haven, the Western New York and Pennsylvania, and the West Shore railroads; 7 m. s. of Lake Ontario, 76 m. e. of Suspension Bridge, 81 m. w. by n. of Syracuse, 229 m. w. of Albany; $17\frac{1}{2}$ sq. m.; popularly known as the 'Flour City.' The city is 263 ft. above Lake Ontario; and the Genesee river, which bisects it nearly equally, has three remarkable falls in the city limits and within a flow of 2 m., the Upper of 96 ft., the Middle of 25 ft., and the Lower of 84 ft. The river and falls furnish motive power of great magnitude, and constitute the chief element of the city's industrial growth and general prosperity. The river is here crossed by the Erie canal on an imposing stone aqueduct 848 ft. long, supported by 7 arches. R. is naturally picturesque and is laid out quite regularly. The streets in the main are broad and lighted with gas and electricity. In the business portion the buildings are large and of striking architectural appearance, and in the residence portion they are set back from the streets and have attractive surroundings of parterre and lawn. The city is supplied with water from two sources, the combined works costing about \$3,750,000. The system for fire hydrants and light mechanical purposes is provided by the Holly plan, which takes water from the river and distributes it through 12 m. of mains. The system for general purposes comprises an intake at Hemlock Lake, 29 m. s. and 400 ft. above the city, and a distribution through 150 m. of mains. The main receiving reservoir has a capacity of 85,000,000 gallons, and the distributing reservoir 45,000,000. Both systems can be quickly connected in case an extraordinary amount of water should be wanted suddenly. The city is divided into 16 wards, and 1903 had net public debt \$8,889,000, assessed valuation of all taxable property \$115,924,265, and tax rate \$1.73 on 100. There were (1902, Sept.) 2 national banks (cap. \$550,000), 6 state banks (cap. \$800,000), 4 savings banks (surplus \$3,223,034), and 2 private banks.

R. is the port of entry of the Genesee customs district, with lake port at Charlotte; and its foreign trade is mostly with Canada. During the fiscal year ending 1903, June 30, the impts. were \$943,576, and the expts. \$1,174,450. Of the impts. 1890 \$577,623 were dutiable, \$228,364 non-dutiable, \$422,030 came direct from foreign countries, \$383,957 through exterior ports without reappraisement, \$585,742 were entered for immediate consumption, \$220,245 for warehouse, \$3,626 were in American vessels, \$802,361 in foreign vessels. The entrances (1890) were 126 Amer. vessels of 45,098 tons and 642 foreign vessels of 134,046 tons—total vessels 768. tonnage 179,144; the clearances were 74 Amer. vessels of 12,647 tons and 684 foreign vessels of 143,352 tons—total vessels 758, tonnage 156,599. There were 23 vessels of 3,686.52 tons enrolled and licensed at

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the custom-house. In 1880 R. had 735 manufacturing establishments, employing \$13,161,870 capital and 14,607 hands, paying \$5,217,713 wages, and yielding products valued at \$26,478,266. In 1887 there were 19 flour-mills which produced 800,000 barrels of wheat; the sales of manufactured tobacco and cigars aggregated \$3,500,000; the boot and shoe industry had about \$3,000,000 capital and \$7,000,000 products; the manufacture of men's and boys' clothing employed 4,000 hands and had \$7,350,000 sales. In 1900 there were 2,616 establishments, with \$49,086,212 capital and 33,408 employees, yielding products valued at \$69,129,820. R. claims to have the largest burial casket manufactory in the world; the largest carriage factory in the United States; and to manufacture one-fourth of all the perfumery made in the country. Other manufactures include beer and ale (13 breweries), agricultural implements, glassware, optical instruments, steam-engines, lubricating oils, car-wheels, railroad lamps, dentist and barber chairs, drain and sewer pipe, fire-works, safe-locks, iron bridges, artificial limbs, and pins. A large and growing industry is the nursery and seed business, in which R. holds first rank. The names of Patrick Barry, Henry Ellwanger, and James Vick are familiar to all interested in horticulture, floriculture, and agriculture. The various nurseries have together nearly 4,000 acres under cultivation, and yield annual products of about \$1,000,000.

In 1887-8 there were 40,000 children of school-age (5-21 years), of whom 15,723 were enrolled in the public schools, and 11,789 were in average daily attendance. There were 31 public school buildings including the Free Acad., 16 male and 350 female teachers, school property valued \$711,000, receipts \$333,227, expenditures \$317,898, balance \$15,329. The high school had 18 instructors and 260 male and 431 female pupils; the teachers' training class had 1 instructor and 59 students, with 300 graduates since opening (1883); the kindergarten grade had a normal training-class and a training-class for kindergartners; and the city hospital had a training-class for nurses. The secondary schools were the Livingstone Park Seminary for girls (Prot. Episc.), founded 1858, with 8 instructors and 49 pupils; classical and English school for boys (non-sect.), 1883, with 2 instructors and 18 pupils; Fort Hill School (Prot. Episc.), 1883, with 3 instructors and 42 pupils; classical and scientific school, 1871, with 1 instructor and 27 pupils; and the Wagner Memorial Lutheran College, with 5 instructors and 31 students. There was one college of liberal arts, the Univ. of Rochester (q.v.). The Rochester Theol. Seminary (Bapt.), founded 1851, had 12 instructors, 108 students, grounds and buildings valued at \$102,827, productive funds \$502,037, income \$50,910. The Rom. Cath. Sisters of Mercy had an industrial, benevolent, and scientific school, founded 1872, with 10 instructors and 60 pupils; and there were 2 business colleges with 17 instructors and 578 male and 173 female students. The Western New York Institution for Deaf Mutes (founded 1876) had 13 instructors, 92 male and 72 female inmates, 53 in the kin-

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dergarten class and 164 in the articulation and lip-reading classes; receipts \$44,176, expenditures \$45,270. The School of Mechanics, established 1885 through the aid of leading manufacturers and educators, had 500 students. Industrial education was provided also in the State House of Refuge for Juvenile Delinquents, which had technological departments for boys and girls. The libraries were the Univ. of Rochester library, 23,150 vols.; Rochester Theol. Seminary, 22,000 vols.; Law, 11,900 vols.; Reynolds' Free, 9,358 vols.; and Y. M. C. A., 1,451 vols. In 1891 there were 7 daily, 22 weekly, 1 bi-weekly, 2 semi-monthly, 19 monthly, and 1 quarterly periodicals.

The notable buildings include the co. court-house; new U. S. custom-house; Rochester City and St. Mary's hospitals; Rochester, St. Patrick's, St. Mary's, St. Joseph's, and Hebrew orphan asylums; Home for the Friendless; Church Home (Prot. Episc.); Industrial Home; Home for Truant Children; the Univ. of Rochester buildings; the Rochester Theol. Seminary buildings; Free Acad.; State Industrial Schools for boys and girls; Warner Observatory; Ward's Natural Science Museum; Powers buildings; Rochester Savings Bank; also the Aqueduct. There are 76 churches, of which 11 are Presb., 11 Rom. Cath., 10 Meth. Episc., 10 Prot. Episc., 6 Bapt., 5 Jewish, and 5 Lutheran. The most noticeable church buildings are the First Presb., First Bapt., and St. Patrick's Cathedral (Rom. Cath.). R. is the seat of a Rom. Cath. bp. Among local improvements in progress is a public park and boulevard along the river; the former will be known as Seneca Park and will include two of the falls among its attractions. There are two cemeteries deserving visits, Mount Hope, established 1838; and the Rom. Cath. Cemetery of the Holy Sepulchre, established 1872.

The first mill at R. was erected by 'Indian' Allan 1789; the Cayuga bridge over the Genesee was completed 1800; a bridge at the falls was finished 1812; and Col. Nathaniel Rochester (q.v.), who bought the Allan mill site 1802, made a permanent settlement there 1818, when the place was named in his honor. Pop. (1870) 62,386; (1880) 89,366; (1890) 133,896; (1900) 162,608.

ROCH'ESTER: episcopal city, parliamentary and municipal borough, and river-port of Kent, England; between Chatham (q.v.) on the e., and Strood on the n.w., on the right bank of the Medway, 36 m. e.s.e. of London, by the London, Chatham, and Dover railway. Together with Chatham and Strood, it forms in effect one large town. The city is surrounded on two sides by the river; and its ancient castle and cathedral, the numerous martello towers along its shores, and the works connected with the Chatham lines of fortification, render its appearance very striking. The bishopric of R. was founded 604; but the early Saxon cathedral suffered from the ravages of the Danes, and was in a completely ruined condition at the Norman Conquest. Gundulf, consecrated Bishop of R. 1077, began to rebuild the cathedral and the priory connected with it; the dormitory, chapter-house, and refectory were added

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under the succeeding bishop; and the new cathedral was dedicated 1130, in presence of the king and a great company of bishops. The cathedral, whose nave and crypt are Norman, and the choir and transepts Early English, is 310 ft. long, and the w. transept is 123 ft., and the nave and choir 68 ft. broad. Of the ancient Norman priory, only a small fragment remains. The castle, crowning an eminence, and overlooking the cathedral, is a Norman keep, of wonderfully strong and solid masonry. R. imports coal and exports hops. 4,463 vessels, of 766,018 tons, entered the port (1880). and 4,798. of 712,215 tons, cleared. R. returns two members to the house of commons. Pop. (1871) 18,353; (1881) 21,590; (1891) 26,170.

R., surmised to have existed prior to the Roman invasion, was called by the Romans *Durobrivæ*, and, according to Bede, derives its present name (*Hrofs-ceaster*, Hrof's Castle) from Hrof, a Saxon chieftain.

ROCHESTER, *röch'is-ter*, JOHN WILMOT, second Earl of: 1647, Apr. 10—1680, July 26; b. Ditchley, Oxfordshire: writer and courtier who has left a name notorious for wit and profligacy. He was entered of Wadham College, Oxford, when only 12 years of age; and after travelling in France and Italy, attached himself to the court, and rose high in favor with Charles II. In 1665 he went to sea in the fleet commanded by the Earl of Sandwich, and behaved at Bergen with great intrepidity. R. incurred the displeasure of the king and was committed to the Tower, for the forcible abduction of a celebrated beauty and heiress, Miss Mallett, who was rescued by her friends, but whom he subsequently married before he was 20 years old. His wit and love of pleasure made him the favorite of a dissolute court. His genius and activity of mind led him to literary pursuits and poetry; and Anthony Wood speaks of him as the greatest scholar among the nobility of his day. As he passed out of youth, he gave less time to study, and more to vicious company, and indulgence in wine; and he died at the early age of 34. Bp. Burnet has left an interesting account of his death under the title *Some Passages of the Life and Death of John Earl of Rochester*, from which it appears that he sincerely repented his immoral and dissolute courses and became a Christian convert. He wrote some love-songs, an elegant *Imitation of Horace on Lucilius*, a *Satire against Man*, in which he is much indebted to Boileau, and an *Essay on Nothing*.

ROCHESTER, NATHANIEL: 1752, Feb. 21—1831, May 17; b. Westmoreland co., Va. Most of his boyhood was spent in N. C. In the revolution he was paymaster of the N. C. troops; he was a member of the legislature, engaged largely in mercantile operations, and 1783 commenced various manufactures at Hagerstown, Md. He purchased large tracts of land in N. Y., to which state he removed 1810, and 1818 he settled at Rochester, which had been named in his honor. He was influential in securing the formation of Monroe co., of which he was the first clerk and the first representative in the state legislature. He died at Rochester.

ROCHESTER—ROCHET.

ROCHESTER, UNIVERSITY OF: college at Rochester, N. Y., under Baptist auspices. In 1847 effort was made to remove Madison Univ. (college, with a theol. dept.), founded 1820, from Hamilton, N. Y., to Rochester. This failing, a charter for the Univ. of Rochester was obtained from the Board of Regents of N. Y. 1850, made effective by provision for buildings and a fund of \$100,000. The charter does not vest control in any religious denomination; it created a self-perpetuating board of 24 trustees, who, as fact, represent different denominations, but with a majority of Baptists thus far. There is no preaching service maintained by the institution; no organic connection with the kindred and neighboring theol. seminary; no schools of law, medicine, or applied science; no preparatory dept., and no dormitories. The number of students in the last catalogue included 32 women, and the late Lewis H. Morgan, LL.D., left his estate to the univ. to provide facilities for co-education. The campus, in the e. part of the city, is of 24 acres, and the brown-stone buildings (visible from the N. Y. Central railroad), are Anderson Hall, for chapel and lecture-rooms; Sibley Hall, for library and cabinets; Reynolds Chem. Laboratory; and an observatory and president's house. The museums are superior; the library has 38,000 vols., with a fund of \$50,000. The courses of study are indicated in the 1900-01 summary of students: resident graduates, 4; classical students 221; total 210. There are 18 professors; the pres. was Rhush Reed, D.D., LL.D. In 1901 the productive funds had a value of \$723,779; the total income was \$53,842; the value of grounds and buildings was \$430,000. The geological museum is one of the finest in the United States. There are 110 scholarships, besides the special Dean fund of \$50,000 for sons of Baptist ministers.

ROCHET, n. *röch'ët* [*F. rochet*, a smock-frock, a rochet—from mid. L. *roccus*, an under garment: OHG. *hroch*, a frock: It. *rocchetto*, a garment of plaited lawn worn by bishops: Ger. *rock*, a coat]: a portion of the church costume of bishops, abbots, prelates, canons of certain privileged chapters, and some other dignitaries; usually of



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lawn or lace, and of the form of a surplice, but with close-fitting sleeves. In the Latin Church, its use is very ancient, though its form has varied. In the first Prayer-book of Edward VI., which preserved a considerable part of the Roman episcopal costume, the R. was ordered to be worn by bishops in the communion service. The R., however, must not be confounded, as is often done by writers on clerical costume, with the Dalmatic and Tunic, tight and close-

fitting vestments of colored silk, worn by bishops under the *Planeta* (q.v.).

ROCK.

ROCK, n. *rők* [F. *roc* or *roche*; It. *rocca*; Sp. *roca*, a rock, a crag: prov. F. *rocque*, a lump of earth: Ir. and Gael. *roc*, a rock]: large mass of stone bedded in the earth's crust, or resting on its surface (but see **ROCKS**): kind of solid sweetmeat or candy (see below): *figuratively*, defense; protection; immovability: **ADJ.** hard like rock; resembling or composed of rocks. **ROCKS**, n. plu. *ròks*, in *geol.*, the substances, less or more solid, which compose the crust of the earth. Though popularly restricted to masses of indurated inorganic matter, this term is extended by geologists to all substances which make up the crust of the earth, whether loose or friable like soil or sand, or compact and indurated like limestone and granite. For description of the rocks of the earth's crust, see **AQUEOUS: IGNEOUS: METAMORPHIC ROCKS: ETC.**: also the classification given at **GEOLOGY**. **ROCKY**, a. *rők'ĩ*, full of rocks; very hard; stony. **ROCK'INESS**, n. *-nēs*, state of being rocky. **ROCK'LESS**, a. *-lēs*, without rocks. **ROCK'ERY**, n. *-ér-ĩ*, hillock formed of stones and earth, etc., for plants. **ROCK-ALUM**, *roche-alum* (see under **ROCHE**). **ROCK-BOUND**, hemmed in or rimmed by rocks. **ROCK-BASINS**, curious basin-shaped cavities occurring in granites of high and exposed regions, from one to many ft. in diameter. **ROCK-BUTTER**, mineral substance, soft yellowish admixture of Alum (q.v.), alumina, and oxide of iron, oozing out of rocks containing alum—product of decomposition; it is always greasy to the touch, yet often hard enough to show a straight foliated fracture. **ROCK-CORK**, variety of asbestos whose fine fibres are so interlaced and matted as to give it the texture and lightness of cork. **ROCK CRYSTAL** (see below). **ROCK-LEATHER**, same as **ROCK-CORK**, which see. **ROCK-MEAL**, n., in *mineral.*, white cotton-like variety of carbonate of lime occurring as an efflorescence, falling into a powder when touched. **ROCK-OIL**, familiar as well as commercial term for *petroleum* or *mineral oil* (see **NAPHTHA: PETROLEUM**). **ROCK-PIGEON**, the wild pigeon, building its nest in rocky hollows—original of the domestic pigeon. **ROCK-ROSE**, foreign wild trailing plant having limp yellow petals; the *Helianthënum vulgäre*, ord. *Cistacëæ* (see **CISTUS**), and American plants of the same order. **ROCK-RUBY**, the red garnet, having a cast of blue. **ROCK-SALT**, familiar as well as scientific term for common salt, when it occurs in the earth's crust as a solid rock-mass (see below). **ROCK-SOAP** (see below). **ROCK-SHELLS**, certain univalves of the genus *Murex*. **ROCK-WOOD**, variety of asbestos, of brown color, occurring in long compacted fibres, which give it the aspect and texture of wood. **ROCK-WORK**, in *gardening*, rough blocks of stone and earth built up in imitation of the asperities of rocks, among which plants adapted for the situation may grow; a rockery, which, simple as it seems, is very difficult of construction in a tasteful manner.

ROCK, n. *rők* [Icel. *rokkr*; Sw. *rock*; Dan. *rok*; OHG. *roccho*; It. *rocca*, a distaff]: the staff or frame about which flax or wool is arranged, and from which the thread is drawn in spinning.

ROCK.

ROCK, v. *rök* [Dan. *rokke*; Norw. *rugga*, to rock, to shake: OF. *rocquer*, to rock, as a child: Ger. *ruck*, a shake or toss]: to move backward and forward, as in a cradle, a chair, etc.; hence, to lull; to quiet; to be moved backward and forward. ROCK'AWAY, n. a four-wheeled two-seated carriage, with full standing top. ROCK'ING, imp.: N. action of one who rocks; state of being rocked. ROCKED, pp. *rökt*. ROCK'ER, n. -*er*, he who or that which rocks; the curved support of a cradle, etc. ROCKING-CHAIR, a chair mounted on rockers, so as to be easily moved backward and forward. ROCKING-HORSE, a wooden horse mounted on a frame, on which children may play at riding.

ROCK, n. *rök*: a huge bird: see Roc.

ROCK: kind of sweetmeat, made of sugar, sometimes mixed with almonds and various flavoring materials. The sugar is first boiled, and then poured out upon a cold marble slab, and worked up into a rough hard mass.—The term is applied also to a form of sweetmeat, in which the sugar, while hot and soft, is pulled repeatedly over a smooth iron hook, until it becomes white and porous. This also is flavored with essences.



Cock of the Rock (*Rupicola aurantia*).

ROCK, COCK OF THE (*Rupicola aurantia*): bird of order *Insessores*; tribe *Dentirostres*; family *Pipridæ* (Manakins, etc.); regarded by many as a sub-family of *Ampelidæ*. The *Pipridæ*, or Manakins, are a large group of birds, many of them of very curious and beautiful plumage, most of them inhabitants of tropical America. They have the bill broad at the base, the nostrils at the side nearly hidden by feathers; the wings rather short, but pointed; the tail very short and even; the legs (*tarsi*) long and slender. In the genus *Rupicola*, the bill is strong; and the species sometimes called *Rock-manakins* are comparatively large birds, having a double vertical crest on the head, with the

ROCK—ROCK CRYSTAL.

feathers disposed fan-like. The Cock of the R. is a native of Guiana and other n.e. parts of S. America. It is remarkable for its bright orange-colored plumage—the quill-feathers of the wings, however, being black, and the tail tipped with yellow—its large crest overhanging the bill. Its habits are wary. It is a solitary bird, inhabiting rocky places, retiring into a hiding-place during the day, and coming forth to feed at sunrise and sunset. The tips of the crest-feathers are tinged with brown and yellow. The wing-coverts and upper tail-coverts are loose flowing plumes, giving a resemblance to gallinaceous birds. The size is about that of a common pigeon.—The Peruvian Cock of the R. (*R. Peruviana*) is less brilliant in plumage than the Guiana species.

ROCK RIVER: stream rising in s.e. Wis., and running s.w. into Ill., thence still s.w. to the Mississippi 3 m. below Rock Island. Its course of 200 m. is through a pleasant region, one of the most fertile in the world—the ‘Rock River Country.’ Its frequent falls give abundant water-power, and it is crossed by several railroads.

ROCKALL, *ròk'awl*: islet rock on a sandbank in the n. Atlantic Ocean; this bank is nearly 100 m. in length, and 40 in breadth. The rock itself is in $57^{\circ} 35'$ n. lat., $13^{\circ} 40'$ w. long., about 300 m. w. of N. Uist, in the Outer Hebrides, and is of rounded form, rising 18 or 20 ft. above the sea. It is surrounded by breakers, and inhabited only by large flocks of sea-birds. It was found some years ago to be surrounded by considerable shoals of large fish, chiefly *Gadidæ* and *Pluronectidæ*. A company was formed 1861 to carry on fishery at the place; but the supply was less than was anticipated, and the distance from markets too great, and the speculation proved very unprofitable.

ROCK CRYSTAL: popular, partly also scientific, name for the finest and purest Quartz (q.v.), seldom applied, however, to small implanted crystals which are mere six-sided pyramids, but generally to those in which the six-sided prism is well developed. The name is sometimes limited to colorless and perfectly transparent quartz, but is also rarely extended to the violet or amethystine (*Amethyst*, q.v.), red (*Bohemian Ruby* or *Silesian Ruby*), wine-yellow (*Citrin* or *Gold Topaz*), brown or smoky (*Smoke Quartz*, *Cairngorm Stone*), etc. The beauty of specimens of R. C. is sometimes very great. The crystals are sometimes slender, crossing and penetrating each other in exquisite groups. They sometimes inclose other substances which are beautifully seen through the transparent R. C., as slender hair-like or needle-like crystals of hornblende, asbestos, oxide of iron, rutile or oxide of titanium, oxide of manganese, etc., and such specimens are known by various fanciful names, as *Thetis's Hair-stone*, *Venus's Hair-stone*, *Venus's Pencils*, *Cupid's Net*, *Cupid's Arrows*, etc.; and sometimes the inclosed substances are small spangles of iron-glance, or crystals of iron pyrites, or native silver in fern-like leaves, or spangles of gold. R. C. in loose complete crystals, as limpid as water, abound in

ROCKEFELLER--ROCKET.

cavities of the calciferous sandrock in the region of the Mohawk river, varying in size from minuteness to several inches in diameter. Very large crystals of perfectly pure R. C. are sometimes found. One found in the Alps, and which was among the treasures carried from Italy by the French 1797, is 3 ft. in diameter, and weighs 8 cwt. R. C. was prized by the ancients, and was used by them, as it still is, for vases, cups, seals, etc. Large spheres of pure and flawless R. C. are worked out and polished by the Japanese. An important modern use of it is for lenses of spectacles, etc. ('pebble lenses'), its hardness rendering it much less liable to be scratched than glass.

ROCKEFELLER, JOHN DAVISON; 1839, July 8; b. Richford, N. Y.: financier. In 1853 the family removed to Cleveland, O., where R. graduated at the high school at 16 years of age. While not yet 19 years of age he became partner in the firm of Clark & Rockefeller, and in 1865 in the oil-refining firm of Rockefeller & Andrews. In 1870 the Standard Oil Co., of Ohio, was organized, capital \$1,000,000; John D. Rockefeller, pres. In 1882, the Standard Oil Trust was formed with capital \$75,000,000, afterward increased to \$95,000,000. In 1892 the Supreme Court decided the trust to be illegal; it was accordingly dissolved, and the business conducted by the separate firms or companies, in each of which John D. Rockefeller is a shareholder. The associated companies own a vast extent of oil-producing territory and pipelines, oil-refineries, steamships, etc., with distributing stations and connections in all parts of the world. Mr. R.'s benefactions are numerous and large, the most extensive being to Chicago Univ. (q.v.).

ROCKET, n. *rōk'ēt* [F. *roquette*—from It. *ruchetta*, the rocket; *ruca*, garden-rocket—from L. *erūca*, a kind of cole-wort; Ger. *rauke*, the rocket]: name given to a number of plants of nat. order *Crucifere*, and belonging to the genera *Brassica*, *Sisymbrium*, *Erysimum*, *Barbarea*, *Hesperis*, etc.—GARDEN R. (*Brassica*, *Eruca*, or *Eruca sativa*) is an annual, native of Austria, with stem 2 ft. high, upright and branching; leaves smooth, succulent, cut and toothed. When in flower, it has a strong, peculiar, and disagreeable smell; but when it is very young, this smell is almost imperceptible, and the leaves are used as a salad, for which it is frequently sown on the continent of Europe.—The name GARDEN R. is given also to *Hesperis matronalis*, called also Dame's Violet (q.v.), a favorite ornament of flower-borders.—The YELLOW R. of flower-borders is a double-flowered variety of *Barbarea vulgaris* (see CRESS).—The WILD R. (*Sisymbrium officinale*, or *Erysimum officinale*), is sometimes sown and used as a spring pot-herb.

ROCKET—ROCK-FISH.

ROCKET, n. *rök'ët* [It. *rocca*, a rock or distaff; *rocchetto*, a rocket or bobbin to wind silk on, any kind of rocket or squib of wildfire: Ger. *rakete*, a rocket]: firework consisting of a cylindrical case of pasteboard filled with a composition, whose combustion produces recoil so great as to cause it to ascend into the air, its flight being guided by a rod attached. R. is also a weapon of war invented by Sir William Congreve; consisting of a tubular case of pasteboard, or thin metal, charged to the muzzle with a composition consisting of saltpetre 68 parts, sulphur 12 parts, charcoal, or mealed powder, 32 parts. This composition



is rammed hard into the case, the centre being left void. To the R. is attached a long stick, which serves (like the tail of a kite) to straighten its course: see PYROTECHNY. When lighted at the end, the stream of gases propels the mass on the principle explained under BARKER'S MILL. As a mere firework, rockets are made of a few ounces in weight: as intended to throw light upon a town or a hostile work they average from $\frac{1}{2}$ lb. to 2 lbs. These light-rockets were improved by Sir William Congreve (1772-1828. b. Staffordshire; lieut. gen. in the Brit. army), who so contrived them, that, when over the necessary point, the R. discharged a number of light balls which burned in the air for several minutes with great brilliancy, while others at the same point released small parachutes which sustained a bright light for a still longer time. But Sir William Congreve did more: he converted the R. into a terrible weapon of war, with ranges which no ordnance of that day could attain. Discarding the small sizes, he made 12-lb., 18-lb., and 32-lb., rockets, which he charged with canister-shot, bullets, and other missiles. The stick for a 32-lb. R. is 18 ft. in length, and the maximum range 3,500 yards. This range can be increased by discharging the R. from a cannon, with a time-fuse to ignite it at the cannon's utmost range, when the R. commences its own course. As missiles, these rockets are found to annoy most seriously the defenders in a fortified work; and, in a bombardment, they speedily set houses and buildings on fire. One great advantage in a R. is, that it has no recoil against

Congreve
Rocket.

the stand from which it is fired; the largest R. may therefore be discharged without danger from the smallest boat. For use of rockets in shipwrecks, see LIFE MORTAR AND ROCKET.

ROCKETER, n. : a term applied to a bird, as a pheasant, which, when flushed, rises rapidly straight up in the air.

ROCK'-FISH, see WRASSE.

ROCKFORD--ROCKINGHAM.

ROCKFORD, *rök'förd*: city, cap. of Winnebago co., Ill.; on both sides of Rock river, and on the Chicago and Northwestern, the Chicago Milwaukee and St. Paul, the Burlington and Quincy, and the Illinois Central railroads; 92 m. w. of Chicago. The two parts of the city are connected by 6 bridges across the river, 3 for railroad, and 3 for wagon, street-car, and foot traffic; and local rapid transit is further facilitated by an electric street railroad more than 10 m. long. The city is regularly laid out and handsomely ornamented with choice trees; is lighted with gas and electricity; obtains its water from 5 artesian wells by means of the Holly system of pumping and distributing; and has an improved sewerage system. In 1844 a dam 800 ft. long was built across the Rock river, and from the superior water-power thus obtained R. has become an important manufacturing city. In 1891 there were 28 churches, 14 public school buildings, Rockford Female Seminary (founded 1849), business college, public library and reading-room, museum with interesting and varied collections, Y. M. C. A., city hospital assoc., 5 national banks (cap. \$525,000), 1 state bank (cap. \$125,000), and 3 daily, 2 semi-weekly, 7 weekly and 3 monthly periodicals. The industries comprise 5 agricultural implement works, 11 iron foundries, 11 furniture factories, 4 hosiery mills, 3 carriage factories, 3 boot and shoe factories, 3 pump factories, cotton-mill, woolen-mill, 2 paper-mills, 4 flour-mills, watch and watch-case factories, cutlery factory, stove foundry, and manufactories of wire goods, electrical apparatus, burial caskets, churns, soap, artificial stone, steam-heating apparatus, malleable iron, gloves and mittens, silver-plated goods, and minor articles.—R. was settled 1836, incorporated 1852, and increased in area (gaining more than 3,000 over the census pop.) 1890. Pop. (1870) 11,049; (1880) 13,136; (1890) at census 23,507, afterward more than 26,507; (1900) 31,051.

ROCKHAMPTON, *rök-hämp'ton*: important town of Queensland, on the Fitzroy river, 35 m. from its mouth, 420 m. n.w. of Brisbane, nearly on the tropic of Capricorn. R., which owes its rise to the rush to the gold-fields 1858, is the port for Central Queensland, has large shipping trade, and is the starting-point of the Central railway westward. The land westward is the finest pastoral district in Queensland. Pop. (1881) 7,435; (1901) 19,691.

ROCKINGHAM: town, cap. of Windham co., Vt.; on Williams river, and the Central Vermont r.r.; 5 m. n. of Bellows Falls, and 29 m. s. of Woodstock; the Connecticut river flows on the e. It contains 3 paper-mills, 2 woolen mills, a cotton mill, a bank, an academy, and has a weekly newspaper.—Pop. (1890) 4,579; (1900) 5,297.

ROCKING-STONES.

ROCKING-STONES, or **LOGGANS**, *lög'ganz*: large masses of rock so finely poised as to move forward and backward with the slightest impulse. They occur in nearly every country. In N. America they are for the most part obviously but bowlders left by glaciers of the Glacial Period, or, in some cases, a mass of fallen or of denuded rock. Some seem to have been formed by cutting away a mass of rock round the centre-point of its base. The former are chiefly granitic rocks, in which felspar and porphyry are abundant; and these ingredients becoming rapidly decomposed, and the dust and sand washed away by rains, what was formerly a solid rock assumes the appearance of a group of irregularly-shaped pillars, having a rhomboidal horizontal section, and separated into portions by horizontal and vertical fissures. As decay proceeds, the edges of the blocks forming the pillar are first attacked and disappear, as is also the case with greenstone and basalt, and the pillar now becomes a pile of two or more spheroidal rocks, resting one upon the other (see fig., where A, B, and C exhibit three successive stages in the process of decomposition, as observed by De Luc in the mountains of Silesia). Should a mass of rock be so situated as to preserve its equilibrium in spite of the gradual diminution of its base or point of support, a rocking-stone or loggan is the result. For an exposition of the principle regulating the stability of equilibrium of R.-S. see **STABILITY**. Various explanations have been given of the uses of these singular objects. They are supposed to have been used in very early times for purposes of divination, the number of vibrations determining the oracle; hence it came to be believed that sanctity was acquired by walking round them.



Rocking-stone.

Some R. S. occur near to remains of ancient fortifications, which seems to corroborate a statement in one of the poems of Ossian, that the bards walked round the stone singing, and made it move as an oracle of the fate of battle. In Greece, rocking-stones occur as funeral monuments, and are generally found on conspicuous places near the sea. One near Land's End, Cornwall, England, has been computed to weigh no less than 90 tons.

ROCK ISLAND—ROCKLAND.

ROCK ISLAND: city, cap. of Rock Island co., Ill.; on the Mississippi river at the foot of the upper rapids, and on the Chicago Rock Island and Pacific, the Rock Island and Peoria, the Chicago Milwaukee and St. Paul, and the Chicago Burlington and Quincy railroads; opposite Davenport, Io., 180 m. w. of Chicago. It is beautifully built on a sloping plain that makes a picturesque break in the Ill. bluffs of the river; is lighted with electricity; has 5 lines of street railroad; and is supplied with water from the river by the Holly system, which distributes through 17 m. of mains in the city. The city is connected with the island and thence with Davenport by a wrought-iron railroad and highway bridge built by the U. S. govt. at a cost of \$1,300,000. There were (1891) 15 churches, 8 public school buildings, new high school (cost \$28,000), public library (10,500 vols.), two national banks (cap. \$200,000), 1 state bank (savings, surplus \$100,000), 1 private bank, and 2 daily, 1 semi-weekly, 3 weekly, and 1 monthly periodicals. Augustana College and Theol. Seminary of the Swedish Augustana Synod of the Evangelical Lutheran Church, located here, had completed a new college building (cost \$80,000), and had 19 instructors, 300 students, and a valuable library. The navigable part of the river is on the w. of the island; the e. channel was closed by a stone dam built by the U. S. govt., which gave the city and the island an immense water-power that is utilized in both places. This dam was washed away 1888, and has since been replaced with a stronger one. R. I. is named from the beautiful island in the river, which is 3 m. long, comprises 960 acres, was the site of Fort Armstrong in the Black Hawk (q.v.) war and a prison for captured Confederates in the civil war, and is now one of the most important U. S. milit. reservations in the country, containing the central armory and arsenal. Pop. (1870) 7,890; (1880) 11,659; (1890) 13,596; (1900) 19,493.

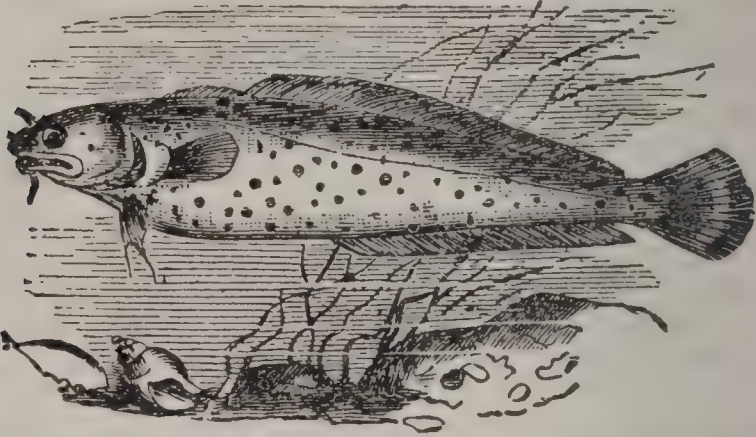
ROCKLAND, *rŏk'land*: city, cap. of Knox co., Me.; on Penobscot Bay and the Knox and Lincoln railroad; 10 m. n.w. of the Atlantic Ocean, 40 m. e.s.e. of Augusta, 49 m. e.n.e. of Bath. It has a water-front of $4\frac{1}{2}$ m.; an excellent harbor protected by a granite breakwater; fire, water, gas, and electric light services; 10 churches; federal building (erected 1874-5 at a cost of \$175,000); co. court-house, (cost \$80,000); public library; 3 national banks (cap. \$355,000), 1 trust company (cap. \$100,000), and 1 savings bank; and 3 daily and 1 monthly periodicals. Its principal exports are lime (about 1,000,000 casks annually), and granite. The custom-house at St. Louis, and the post-offices at New York and Cincinnati were built with granite from the R. quarries. Boston and Bangor steamboats make regular stops at R., which was incorporated 1848 and chartered 1854. Pop. (1890) 8,174; (1900) 8,150.

ROCK'LAND: town in Plymouth co., Mass.; on the Old Colony railroad; 19 m. s.e. of Boston. It is noted for the manufacture of boots, shoes, and tacks; and had (1891) 1 national bank (cap. \$50,000), 1 savings-bank, and 2 weekly newspapers. Pop. (1890) 5,213; (1900) 5,327.

ROCKLAND—ROCK-SALT.

ROCK'LAND LAKE: beautiful sheet of water in Rockland co., N. Y., 30 m. n. of New York, 1 m. from the Hudson, 160 ft. above sea-level. It is notable as furnishing enormous quantities of pure ice for supply of New York, and for export.

ROCK'LING (*Motella*): genus of fishes of the Cod and Haddock family (*Gadidæ*), having an elongated body, compressed toward the tail; the first dorsal fin very slightly elevated, and very delicate; the second dorsal and the anal fins long, continued almost to the tail fin. The species vary much in size. None are much regarded by fishermen;



Three-bearded Rockling or Sea Loach (*Motella tricirrata*).

one reason being that decomposition takes place very rapidly after they are taken out of the water, though, when quite fresh, they are good for the table.

ROCKPORT, *rök'pört*: village and seaport of Essex co., Mass.; on the Atlantic Ocean, and on the Boston and Maine railroad; 32 m. n.e. of Boston. It has 8 churches, public library, cotton-mill, organ factory, isinglass manufactories, widely noted granite quarries, large fishing and farming interests, 1 national bank (cap. \$50,000), 1 savings bank, and 1 weekly newspaper. The n.e. part immediately on the ocean at the extremity of Cape Ann known as Pigeon Cove, is picturesquely situated, has become a popular summer resort for its charming marine views and its salubrious air, and is the seat of the granite interests. Its quarries supplied the stone for the new post-office in Boston. Pop. of R. (1880) 3,912; (1890) 4,087; (1900) 4,592.

ROCK'-SALT: common salt (chloride of sodium) occurring as a mineral and solid. It is always mixed with various impurities. It is found massive or crystallized, its crystals generally cubes, its masses very often either granular or fibrous. It is white, gray, or, owing to impurities, more rarely red, violet, blue, or striped. For its chemical and other qualities, see SALT. It is very extensively diffused, and in some places forms great rock and even mountain masses. Islands of it in the marshes of Petite Anse, n. of Vermilion Bay, La., were discovered about 30 years since, and are now worked extensively. Recent wide borings indicate vast beds in western N. Y., reached at intervals. In at least 23 states, there are wells and springs that give evidence of salt deposits. A hill of R.-S. near

ROCK-SOAP—ROCKVILLE.

Montserrat, Spain, is 500 ft. high. The island of Ormuz, in the Persian Gulf, is formed of R.-S. The Indus, in its upper course, forces its way through hills of R.-S. that rise in cliffs 100 ft. above the river. In many parts of the world R.-S. is found in beds under the soil or other rocks. Those of Cheshire in England yield almost all the salt used in Britain, great part of which is pumped from them in the form of brine. The mines of Wieliczka, in Poland, are of great extent: the workings are at depths from 200 to 740 ft., and the salt at the deepest working is the purest. Some chambers in the mines are said to be 300 ft. high. Blasting by gunpowder is often necessary in the mining operations. The mines give employment to 1,200 or 1,400 workmen; and they have been wrought for centuries. Vast quantities of R.-S. occur in many parts of Asia, Africa, and America. In Caramania and Arabia it is used sometimes for building houses, the dryness of the climate rendering its solubility unimportant.—The salt which crystalizes on the margins and bottoms of salt lakes may be regarded as a variety of rock-salt.—Concerning the salt of the ocean, the salt found in many desert regions as an efflorescence on the ground or on rocks, the salt with which sandstone and other rocks are impregnated, etc., see SALT.

ROCK'-SOAP: mineral consisting of silica, alumina, peroxide of iron, and water, the silica nearly one-half, the alumina and the water sometimes nearly each one-fourth of the whole. It is earthy, easily broken, black or nearly so, very soft, and easily cut with a knife, is greasy to the touch, and adheres strongly to the tongue. It is valued by painters for crayons. It is found in a number of places on the continent of Europe, and occurs in trap rocks in the Isle of Skye. It is found only massive.

ROCKVILLE, *rŏk'vil*: city in Tolland co., Conn.; on the Hockanum river, and on the New York and New England railroad; 15 m. e.n.e. of Hartford. The river drains Snipsic Lake, and at R. has a number of falls (aggregating 280 ft. in total fall) which furnish exceptional motive power for the milling interests that have made R. noted since 1821. The city has 8 churches, opera-house, 2 natl. banks (cap. \$400,000), 2 savings banks (surplus \$45,000), and 1 daily and 2 weekly newspapers. The manufactures include woolen goods, warps, stockinet, gingham, sewing-silk, and envelopes: the envelope factory is considered the largest in the world. R. was set off from the old town of Vernon and chartered as a city by the legislature 1888-9. and held its first municipal election 1889, Dec. 2. Pop. (1880) 5,902; (1890) 7,772; (1900) 7,287.

ROCKY MOUNTAINS.

ROCKY MOUNTAINS: the North American part of the great mountain system extending along the w. side of the American hemisphere, from Patagonia in the s. to the Arctic Ocean in the n. The R. M. part of the system stands opposite the deep north Pacific Ocean up and down the whole length of the w. side of the continent. It may be primarily distinguished as in two parts, the Sierra Nevada and Coast ranges directly fronting the ocean, and the main Rocky chain which forms the great water divide of the continent. The apex of the continent is found in the region, one of the most remarkable and interesting in the world, which has been made by the U. S. govt. the Yellowstone National Park. It lies in the n.w. corner of Wyoming, hemmed in on every side by mountains of volcanic origin, the waters of which flow on the n. and w. to the Missouri and the Gulf of Mexico; on the s.w. and s. to the Columbia and the Pacific Ocean; and on the s. by Green river to the Colorado and the Gulf of California. The vast mountain region w. of long. 105° shows geographical unity, with a breadth between the 36th and 41st parallels of lat. of 800 to 1,000 m. An important subdivision is made by noting the portion of the whole system which shows a n. and s. trend of the chief ranges, forming a southern division, and that in which the chief ranges show a n.w. and s.e. trend, and form a northern division. Between the two, crosswise from e. to w., a marked orographic break occurs, in the form of a high plateau region, over which the line of the Union Pacific r.r. passes at an elevation of over 8,000 ft. The profile of the road shows an elevation of 1,060 ft. at Omaha; 6,075 ft. at Cheyenne, an ascent of nearly 10 ft. in a mile for 516 m., but appearing to follow a level plain, most of the way along the valley of the Platte; and from Cheyenne to Sherman, the summit—a distance of 33 m.—a rise of 66 ft. in a m., to an elevation of 8,271 ft. The Kansas Pacific line rises from 764 ft. at Kansas City to 5,197 ft. at Denver, or nearly 7 ft. per m. for 639 m., but seemingly over a level, treeless plain. The division n. of the plateau shows in general a lower and less impressive mountain scene than the southern, a more uniform height of the ranges and absence of dominating monarch peaks, and greater monotony of details; with, however, the remarkable exception of the Wind River Mountains, which form the culminating region of the continent, with Fremont 13,570 ft. high, and the source of waters which become the Missouri, the Columbia, and the Colorado rivers; also showing immediately n. the Yellowstone geyser region. The ascent to the Wind River range from the great plateau is by the Sweetwater, a lower range; and e. of the Wind River lies the Big Horn range, showing Cloud Peak 7,300 ft. high. Farther e. still, and quite isolated in the plain (which has an elevation of 2,500 to 3,000 ft.), are the Black Hills, between the two forks of the Cheyenne river. They cover an area about 100 m. in length and 60 in breadth, and are clothed with dense growth of pine. The peaks rise 6,000 to 7,000 ft. above the plain. The Northern Pacific r.r. strikes across the plains from the w.

ROCKY MOUNTAINS.

end of Lake Superior to the Missouri at Bismarck, and crossing, runs almost straight to the Yellowstone, thence along that river 340 m., and crosses back to the Mo. at Gallatin, and follows it 100 m. to Helena, and there makes, by way of Mullan's Pass, the ascent of the main divide of the R. M., passing under the summit by a tunnel 3,850 ft. long, at an elevation of 5,548 ft. In their n.w. portion the R. M. include the important Bitter Root range, a part of which forms the main divide between the Missouri and the Columbia; the Lapwai and Cœur d'Alène ranges w. and n.w. of the Bitter Root; the Crazy Mountains lying isolated n. of the Yellowstone river, with numerous peaks about 11,000 ft. high; and the Judith Mountains, also isolated, further northeast.

Much nearer the Pacific than these n.e. parts of the R. M. system is found the long Cascade range, which becomes further s. the grand Sierra Nevada range, along the e. side of California. The Cascade range extends fully 500 m. through Oregon and Washington, and beyond the n. boundary of the U. S. The principal continuous ridge is comparatively low, but from it rise at irregular intervals great volcanic cones, and other remarkable peaks, apparently volcanic, but not conical. At 75 m. n. of Shasta, the last of the Sierra Nevada peaks toward the n., Mount Pitt, rises 9,718 ft. in conical form. Similar to it is Mount Jefferson 150 m. farther n., and between them are various peaks, notably a group of five, three of which, seen in the distance, are known as the Three Sisters. Somewhat less than 100 m. n. of Jefferson there occurs the great cut of Columbia river through the volcanic mass which all along here constitutes the range. The cut goes down to within about 100 ft. above sea-level. Here rise three of the best defined volcanic cones of the range, Mount Hood on the s. of the river, and Mounts Adams and St. Helens on the n., the first rising 11,225 ft. and the other two about 10,500. Mount Rainier, 75 m. n. of the Columbia, reaches an elevation of 14,444 ft., and still further n. is Mount Baker, which is known to have been active as a volcano in 1843, 54, 58, and 70. To the n. of the usual limit of the R. M. in that direction, the mountains extend without any permanent interruption to the Arctic Ocean, and Mount St. Elias, in Alaska, is a volcanic peak 17,500 ft. high.

Going back to the s. end of the Cascade range, the mountain chain becomes the grandest of the whole system within the U. S., under the name of the Sierra Nevada, which begins with Mount Shasta, 14,442 ft. high, and extends s. more than 450 m., with the highest peaks of the R. M., though not such a vast number of high peaks as in the Colorado group, and with scenery of surpassing beauty and grandeur. Some of the principal Sierra peaks are Mt. Tyndall 14,386 ft., Mt. Kaweah 14,000 ft., Mt. Brewer 13,886 ft., Red Slate Peak 13,400 ft., Mt. Dana 13,277, and Mt. Whitney 14,887 ft. The Sierra range forms the w. border of the continental plateau of which the main Rocky M. forms the e. border. The w. side of the Sierra falls nearly to the level of the sea within about 100 m., and thus

forms a grandly conspicuous scene. Evidences of volcanic action are seen everywhere, as in the Cascade range; and even now numerous hot springs and geysers appear, and earthquake shocks are frequent. Snow falls to the depth of 40 or 50 ft., and much of it remains through the year. Enormous glaciers occur on the n. side of the mountains, about 65 in number; and moraines and glacial lakes, indicating ancient glacial action, are found in great numbers. The Yosemite Valley, which has been set apart by the U. S. as a national pleasure ground, is remarkable for rugged scenery marvellously impressive and beautiful. W. of the Sierra Nevada and Cascade ranges are the Coast ranges of California and Oregon, greatly inferior in importance, but a part of the system.

The division of the R. M. is about 600 m. long from n. to s., and 300 in breadth. Its e. edge shows a double range, inclosing a system of high plateau-like valleys, or inter-mountain parks at an elevation of 6,000 to 10,000 ft., and around which the mountains rise 3,000 to 4,000 ft. higher. The chief of these inclosed spaces are the North, Middle, and South Parks, drained by the head-waters of the Platte, Colorado, and Arkansas; and the San Luis Park, in which lies the upper course of the Rio Grande. The Front or Colorado range proper is a broad lofty mass running s. from near the Union Pacific plateau, in 40° n. lat. to Pike's Peak (14,147 ft. high), with Long's Peak, also, and Gray's Peak (respectively 14,271 ft. and 14,341 ft. high). It forms the continental divide from its n. end as far as Gray's Peak, where the divide turns w. for 20 m., crossing to the Sawatch range, which it follows for 75 m. The Sawatch is one of the highest chains of the R. M. Its chief peaks are Holy Cross (14,176 ft.), and Mount Harvard (14,375 ft.), Mount Yale (14,150 ft.), Mount Princeton (14,199 ft.), and many others nearly as high. The continental divide passes from the s. end of Sawatch s.w. about 75 m. over a high region showing no range, to the San Juan range, the crest of which it follows in a s.e. direction, with many points above 13,000 ft. high, and the culminating one, Uncompahgre Peak 14,235 ft. To the w. of the Sawatch range are the Elk Mountains, a volcanic mass of sharp pinnacles, among which Castle Peak rises to 14,000 ft. The Sangre de Cristo range is almost a continuation of the Sawatch: it has Blanca Peak 14,463 ft. high. W. from the San Juan range the plateau region of sedimentary rocks, marvellously cut by cañons or ravines, extends to the Colorado river. The Uintah range is remarkable as having an e. and w. trend. It starts from the Wahsatch range and runs e. 150 m., with these chief points, Gilbert's Peak (13,687 ft.), Tokewanna (13,485), and Wilson's Peak (13,235 ft.). The Wahsatch range, one of the most conspicuous of the R. M. system, forms the w. limit of the s. division. It has a n. and s. trend, and rises nearly 12,000 ft. in that point just e. of Salt Lake City.

ROCOA, n. *rō'kō-a* [F. *roucou*: Brazilian, *urucu*]: the vegetable pulp which yields *arnotto*, which see; also spelled Rocou or Roucou.

ROCOCO—ROCROI.

ROCOCO, a. *rō-kō'kō* [F. *rococo*, antiquated, old-fashioned]: having a general tendency to be bizarre in architecture, decoration, or furniture, after the French style of Louis XIV. and XV.; the name was applied first to the very debased style of architecture and decoration which succeeded the first revival of Italian architecture. It is ornamental design run mad, without principle or taste. A similar style prevailed in Germany and Belgium during



Rococo Ornament.

the 18th c., and in France during the time of Henry IV. The fig. is an example from an altar in the Church of St. James's, Antwerp.

ROCROI, *ro-kro-wā'*: small town of France, dept. of Ardennes, 15 m. n.w. of Mézières, a fortress of the fourth class, in a fine, extensive plain, bounded on all sides by the forest of Ardennes. Pop. (1881) 1,649. It is memorable for the victory gained by the Great Condé (then Duke of Enghien) over the Spaniards, 1643, May 19. The Spanish army was composed of veteran bands of Walloons, Spaniards, and Italians; and their general, Don Francisco de Mellos, gov. of the Low Countries, was a commander worthy of his army. The French (22,000) were also good troops; but their general, Condé, was a young and inexperienced officer. At first, the battle was unfavorable to the French, but at last the Spaniards were thrown into irretrievable rout. The Count of Fuentes, the commander of the redoubtable infantry, and 10,000 of his men, were among the slain; and 5,000 men, with all the cannon, many standards, and the baton of the Count de Mellos, were captured. But, far beyond all material losses, the renown of invincibility, acquired by the Spanish infantry first on the field of Pavia (1525), and confirmed at St. Quentin, Gravelines, and Prague, was destroyed.

ROD—RODENTIA.

ROD, n. *rōd* [Dut. *roede*; Ger. *ruthe*, a rod: Wal. *ruda'*, the pole of a carriage]: staff or wand as a badge of authority; a shoot or long twig; instrument of punishment or correction; measure of length containing five yards and a half, or $16\frac{1}{2}$ ft.—more frequently termed a *pole* or *perch* (for the 'square rod,' used in estimating mason work, see **ROOD**): in *Scip.*, a sprout, hence race or family. **RODDY**, a. *rōd'dī*, full of rods and twigs. **ROD-IRON**, long slender bars of iron for making nails.

RODE, v. *rōd*: past tense of **RIDE**, which see.

RODENTIA, n. plu. *rō-dēn'shī-ā* [L. *rodens* or *roden'tem*, gnawing—from *rodērē*, to gnaw]: extensive class of animals, so called from their habit of gnawing or nibbling their food, as the rat, hare, rabbit, beaver, etc. **RODENT**, a. *rō'dēnt*, gnawing: N. one of the gnawers, as the rat, the squirrel, etc.—The *Rodentia* in the system of Cuvier, are an order of mammalia, almost exactly corresponding with the *Glires* of Linnæus. The order is a truly natural one, and therefore universally recognized by naturalists. The R. are small quadrupeds; the largest of them—the Capybara—not being equal in size to a hog, while to this order belong also the smallest of mammalia. They are very numerous, and widely distributed over the globe, particularly abundant in S. America, and rarest in Australia. They all are remarkably characterized by their front teeth, variously regarded as incisors and canines—the true incisors or canines being absent—which are large and of peculiar structure, two in each jaw, and separated by a considerable vacant interval from the molars. The front teeth have a plate of hard enamel in front, which wears more slowly than the substance of the rest of the tooth, so that being employed on hard substances, they acquire a chisel-like form, and unlike the teeth of mammals in general, they are always growing from a fresh pulp at the base, so that compensation is made for the wearing away at the tips; but when a tooth is accidentally destroyed, the opposite tooth, continuing to grow, sometimes acquires a monstrous shape and size, from which cause rats and other rodents have been known to die, the enormous tooth preventing the eating of food, or even recurving and piercing the skull. The ordinary food of most rodents consists of vegetable substances, generally hard, and their front teeth are adapted for comminuting it by gnawing, and are used also for gnawing wood, the shells of nuts, etc., to obtain access to food. The molar teeth have flat crowns, having ridges of enamel, which make them more or less tuberculous; and these are in the line of the jaw, while the only horizontal motion of which the lower jaw is capable is forward and backward, thus making the ridges of the molar teeth powerful instruments for the reduction of hard substances; the jaws also being in general very strong. In the rodents which eat only vegetable food, the molar teeth have rounded tubercles; while in the omnivorous kind—as rats—the tubercles become sharp points. The stomach is simple; the intestines are very long; the cæcum is often large, sometimes larger than the stomach itself. The brain is not large, and is nearly

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smooth, and without convolutions; the rodents are not generally distinguished for sagacity, though some of them—



Skull of the Beaver, showing the Dentition.

as the beaver—show remarkable instincts. Most of them may be easily tamed, but few of them seem capable of learning anything, and in general they merely acquire a familiarity with man, of which the rabbit is a perfect example, though the rat manifests a far higher intelligence. The eyes are directed laterally. The rodents very generally have the hinder limbs larger than the fore, and their motion is partly a kind of leaping. In some, this is as completely the case as in kangaroos. Some, as squirrels, have an admirable power of climbing trees; and a few, as beavers and water-voles, are aquatic. Most, if not all, have the habit of sitting on their haunches, and holding their food to their mouth by their fore-paws; using both paws together, however, as the fore-feet have not at all the character of a hand. The thumb is never opposable to the other toes; sometimes it is rudimentary or wanting. The bones of the fore-leg are generally separate, but have not so much freedom of motion as in the *Carnivora*. The toes are terminated by claws. The presence or absence of clavicles (collar-bones) divides the order into two sections, to the first of which, having clavicles, belong squirrels, mice, rats, voles, the beaver, etc.; and to the second, without clavicles, belong porcupines, cavies, chinchillas, hares, rabbits, etc. The rodents are very numerous, about 400 species being known.

RODERICK, *rôd'ér-ik*: last king of the Visigoths in Spain; whose tragic downfall, coincident with that of the Visigothic monarchy, has inspired poets and romancers (including historians) to throw round him a halo of glory: he began to reign 709; d. 711, July. The Spanish and Arab historians contradict each other in almost every particular of R.'s life—the Arab being, on the whole, apparently the more trustworthy. According to them, R. was of humble birth, but rose, through his talent and bravery, to the command of the cavalry. A conspiracy having been formed against Witiza, the reigning monarch, by the clergy and the nobles of Roman blood, R. was elevated to the throne 709, and by his energy and talent soon quelled all opposition. The sons of Witiza, however, joined with some malcontent Visigothic nobles—among whom was Count Julian—and agreed to summon to their assistance the Arab chief, Muza ibn Nozeir, who had just finished the

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conquest of Mauritania. The Spanish writers, on the other hand, assert that the country groaned under the tyrannical government of R., that his licentious behavior had disgusted many of his nobles, and that the people were ripe for a revolution when the Moslem invasion took place. Both are agreed as to the time and mode of the invasion; but the Arab historians brand Count Julian with the most atrocious treachery, as not only voluntarily surrendering Ceuta, the key of the country, but actually guiding the 13,000 Berbers and Arabs under Tarik into Spain. A landing was effected at Algesiras, 711, Apr. 28; and in spite of vigorous opposition from the gov. of Andalusia, Tarik marched on, routing R.'s chosen cavalry, which had been sent to oppose him. R., who had been employed in another quarter, now hastened at the head of an army, which is variously estimated at 50,000 to 100,000 men, to oppose the daring invaders, who by this time had been so reinforced from Africa and by rebels that their numbers (as reported) amounted to 25,000. The two armies met on the banks of the Guadalete, near Xeres de la Frontera, and July 17 the battle commenced. R. directed the centre of his army in person, appointing the sons of Witiza to command the wings, and the battle raged furiously for three days; a single combat then took place between R. and Tarik—a kind of statement extremely frequent in eastern histories—in which the former was slain, and his head cut off, to be embalmed and sent to Muza. The Christians, enraged at the loss of their chief, fought furiously six days longer, but all in vain, for victory declared itself decisively in favor of the Moslems, to whom the sons of Witiza had deserted soon after the commencement of the contest, and the rout of R.'s army was complete. The most ancient Spanish chroniclers agree in asserting that R. either died on the field or sank in the Guadalete, while attempting to save himself by swimming his horse across; and the various stories of his escape and subsequent adventures are of much later date. This decisive victory laid all central and s. Spain at the feet of the Arabs. R. has been made the hero of an epic poem by Southey.

RODEZ, *rō-dū'*: small town of France, cap. of the dept. of Aveyron; on the crest and slope of a hill, on the n. bank of the Aveyron. Its streets are steep, narrow, winding, and dirty; but the promenades around the town are pleasant. The cathedral, with a clock-tower of great height, is a Gothic structure of the 15th c. A variety of woollen cloths are manufactured, and cheese of highly esteemed quality. Pop. (1881) 14,425; (1886) 14,560.

RODGERS, *rōj'ērz*, CHRISTOPHER RAYMOND PERRY: naval officer: born New York, 1819, Nov. 14. He became a midshipman 1833, served in the war with the Seminoles, in the blockading force in the Mexican war, and was afterward engaged in the coast survey. In the civil war he rendered invaluable service at the battle of Port Royal, at Fort Pulaski, Charleston; and in the blockading force in the s. Atlantic; afterward commanded in foreign waters; was in charge of the bureau of docks and yards 1871-74;

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and, with the exception of two years, in which he was in command of the Pacific naval force, was supt. of the Naval Acad 1874-81. He was promoted capt. 1866, commander 1870, rear-admiral 1874, and was retired 1881. He was pres. of the international conference for selecting a prime meridian 1885; d. 1892, Jan. 8.

RODGERS, JOHN: naval officer: 1771, July 11—1838, Aug. 1; b. Harford co., Md. After serving five years in the merchant marine, he became capt. 1789, entered the U. S. navy with the rank of lieut. 1798, and was executive officer of the *Constellation* when she captured the French frigate *L'Insurgente* 1799, for which service he received a medal and was soon afterward promoted. He was active in quelling an insurrection in Santo Domingo; sailed to France with govt. dispatches 1801; went to Tripoli 1802, and the following year captured the *Meshonda*, a Moorish ship, and with the aid of another vessel destroyed a Tripolitan corsair. He returned to the United States 1803, Dec., but the following July sailed to rejoin the squadron acting against Tripoli, to the command of which he succeeded, with the rank of commodore, 1805, May 22. He secured the abolition of tribute which Tripoli had exacted from Europeans, and an edict forbidding the enslaving of captives taken from Christian nations, and obtained similar concessions from the bey of Tunis. He was stationed at New York 1805-09, and was in command of the naval force on the Atlantic coast 1809-12 to check the operations of the British who were impressing Americans into their naval service; and was in command of the *President* in the famous attack on the British war-ship *Little Belt* 1811, May 16, an action which increased the ill-feeling between the two nations, but in which R. was sustained by a court of inquiry. During the war of 1812 he captured 23 prizes, and rendered valuable service in the defense of Baltimore. He was president of the board of naval commissioners 1815-24, was in command of the Mediterranean squadron 1824-27, and again pres. of the naval board 1827-37. He died at Philadelphia.

RODGERS, JOHN: naval officer: 1812, Aug. 8—1882, May 5; b. Harford Co., Md.; son of Commander John R. He became a midshipman in the navy 1828, and after serving in the Mediterranean squadron spent 2 years at the Norfolk Naval School and studied a year at the Univ. of Virginia. He was afterward at the Brazil station, served in the Seminole war, made valuable charts and sailing directions for the Florida coast, 1852-55 was with the govt. exploring expedition in the n. Pacific ocean, and was in command of the *Vincennes* in explorations of the Arctic Ocean 1855. He served with distinction in the civil war, was a volunteer in the Port Royal expedition, led the James River expedition 1862, in which he commanded the *Galena* and made the famous attack on Fort Darling; when in command of the *Weehawken* 1863 he captured the *Atlanta*, a formidable iron-clad, in Warsaw Sound, Ga.; and in the *Monadnock* he sailed the Atlantic and Pacific Oceans, passed through the Straits of Magellan,

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and came to port in San Francisco. He was in command of the Boston navy-yard 1866-69; of the Asiatic fleet 1870-72; of the Mare Island, Cal., navy-yard 1873-77; in the latter year became supt. of the Washington naval observatory, which office he held at the time of his death; and 1878 became chairman of the light-house board. He reached the rank of rear-admiral 1869, Dec. 31. He died at Washington.

RÖDIGER, *röd'ē-ghēr*, EMIL: orientalist: 1801, Oct. 13—1874, June 15; b. Sangerhausen, Thuringia. He was educated in theology at Halle, and also made a study of Oriental languages, of which he became prof. there 1835. From 1860 till his death he resided at Berlin. He published *Syrische Chrestomathie* (1838); *Himjaritische Schriftmonumente* (1841); completed the *Thesaurus Linguae Hebraicae* of Gesenius after the death of the latter, and edited several editions of his Hebrew grammar, which in translation have had wide use as text-books in this country.

RODIYAS, *röd'i-yaz*: degraded race in Ceylon, who are excluded from society, and live in a condition more abject than that of the Pariahs of India. By some they are thought to be a branch of the Veddahs (q.v.). Under British rule, which does not recognize caste, the R. have improved socially, and are no longer disqualified for labor. For many interesting particulars respecting this unfortunate race, see *Ceylon*, by Sir J. E. Tennent, II. 191.

RODMAN, *röd'man*, THOMAS JEFFERSON: soldier: 1815, July 30—1871, June 7; b. Salem, Ind. He graduated from West Point 1841, and for some years was engaged in testing gun-metal and superintending the making of heavy guns. He devised the method of casting cannon and shells on a hollow core which is kept cold by a stream of water; invented a gauge for determining the pressure on different parts of the gun when a charge is fired, an improved form for the ordinary cannon, and a form of Columbiad known as the Rodman gun. During the civil war he was in charge of the Watertown arsenal, but also had supervision of the making and testing of large guns. From 1865 till his death he was stationed at Rock Island, Ill. In 1865 he reached the rank of brevet brig.gen., and he was promoted lieut.col. 1867.

RODNEY, *röd'nī*, CÆSAR: patriot: 1728, Oct. 7—1784, June 29; b. Dover, Del.; grandson of William R. (1652-1708). He was appointed high-sheriff of Kent co. 1755, during the next few years held numerous offices, was pronounced in his opposition to the tyranny of the Brit. govt., was elected to the first continental congress, and was a member of its general committee, was re-elected to congress and appointed brig.gen. of the militia, labored earnestly to stimulate the patriotism of the people in the s. part of the province, was appointed supreme court judge but declined to serve, became judge of the admiralty 1777, and maj.gen. of militia in the same year. He was pres. of Del. 1778-82, declined re-election, and was returned to congress. He died at Dover.

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ROD'NEY, GEORGE BRYDGES RODNEY, Lord: English admiral: 1718, Feb. 19—1792, May 24; b. at Walton-on-Thames; was second son of Capt. Henry R. of the royal marines. He was taken from Harrow School at the early age of 12, and sent to sea. He became lieut. in 1739; post-capt. 1742; and commander of the Newfoundland station 1748, with rank of commodore. In 1752 he returned home, and was elected M.P. for Saltash. He afterward commanded the men-of-war *Fougueux*, the *Prince George*, and the *Dublin*. In 1759, after 28 years' active service, he was made rear-admiral; and in July he bombarded Havre for two or three days, destroying the town and fortifications so effectually, that it has never recovered its former importance as an arsenal for ships-of-war. In 1761 he took Martinique, Grenada, and Santa Lucia. In 1762 he became vice-admiral, and in 1764 was made a baronet. In 1779 Spain joined France in the war against England, and their united fleets appeared in the Channel in overwhelming force. The siege of Gibraltar was undertaken by the Spaniards; and R., who was sent out with 22 sail of the line and 8 frigates to the W. Indian station, was ordered to relieve Gibraltar *en route*. After capturing seven Spanish ships of wars, he fell in, 1780, Jan. 16, with Admiral Langara, off Cape St. Vincent, which a British writer speaks of as 'that promontory which has witnessed more of our battles and triumphs than any other headland in the world.' Of the Spanish fleet, five were captured and two destroyed. Having accomplished the relief of Gibraltar and Minocra, he quitted the Mediterranean, and crossed the Atlantic to the station of his command. Apr. 17 he defeated, near Martinique, the French fleet, under Count de Guichen. Being ill-supported by his captains on this occasion, he complained to the admiralty. The naval administration of the day was, however, so corrupt that the admiralty suppressed the criminatory passages of his dispatches, and only one of the accused was brought to trial, the others being allowed to escape from the difficulty of finding a sufficient number of non-delinquent officers to try them. R. took Eustatia from the Dutch, with 250 ships and other booty, estimated at three millions sterling. Demerara and Essequibo next surrendered. 1782, Apr. 12, R., in conjunction with Hood and Drake, encountered the French fleet under De Grasse off Dominica. Each fleet comprised more than 30 ships of the line. The battle was more obstinately contested than any other engagement that ever took place between the two nations, being without intermission for nearly 12 hours. De Grasse was totally defeated, and R. lost seven ships of the line and two frigates. Owing to the French vessels being crowded with troops, they are said to have lost 3,000 killed and 6,000 wounded; while the English loss did not exceed 600. On board the *Ville de Paris* were 36 chests of money, to pay the soldiers; and the whole train of artillery was on board the other captured snips. Count de Grasse was himself taken prisoner. His flag-ship, the *Ville de Paris*, 112 guns, was the only first-rate man-of-war that, till that date, had ever been captured and carried into port; and De

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Grasse, when he landed at Portsmouth, was stated to be the first commander-in-chief of a French fleet or army who had been prisoner in England since the capture of Marshal Tallard in Queen Anne's wars. In this action R. successfully executed the nautical manœuvre of breaking the French line, and placing the enemy between two fires, which had fallen into disuse since the commonwealth. R.'s victory saved Jamaica, ruined the naval power of France and Spain, and gave the finishing blow to the war. The news arrived in England just after an order had been dispatched for the recall of R., whose politics differed from those of the new ministry. He was then elevated to the peerage as Baron Rodney, and received a pension of £2,000 per annum for himself and his successors. He lived in retirement the rest of his life. Among English naval heroes he ranks next to Lord Nelson.

RODOMEL, n. *rōd'o-mēl* [Gr. *rhodon*, a rose; *meli*, honey]: the juice of roses mixed with honey.

RODOMONTADE, n. *rōd'ō-mōn-tād'* [F. *rodomontade*; It. *rodomontada*, bluster—from *Rodomonte*, a brave but proud and insolent character in Ariosto's 'Orlando Furioso': It. *rodomonte*, a vaporing fellow]: empty noisy bluster; empty vaunting or ranting: V. to boast or bluster. **ROD'OMONTA'DING**, imp. **ROD'OMONTA'DED**, pp. **ROD'OMONTA'DIST**, n. *-dīst*, or **ROD'OMONTA'DOR**, n. *-dēr*, one who indulges in boasting and bluster—also erroneously spelt **RHODOMONTADE**.

RODOSTO, *ro-dōs'to*: town of European Turkey, on the n. shore of the Sea of Marmora, 77 m. w. of Constantinople. It contains many mosques, and sends large quantities of fruits and vegetables to the capital of the empire. Pop. 18,000.

RODRI'GO (or **RUY**) **DI'AZ DE BIVAR'**: see **CID CAMPEADOR**.

RODRIGUEZ, *ro-drēg'*, Sp. *ro-thrē'gāth*: rugged and hilly island, 330 m. e. by n. of Mauritius, of which it is a dependency, being one of the Mascarene group. Area, about 60 sq. m. The soil is fertile: turtles abound. The island is interesting to naturalists as having been the habitat of the now extinct bird, the Solitaire (q.v.). Pop. (1890) 1,978.

ROE, n. *rō* [Icel. *hrogn*; Sw. *rom*; Dut. *roghe*, the eggs of a fish: Ger. *rogen*, spawn]: the eggs or spawn of fish. **ROED**, a. *rōd*, filled or impregnated with roe. **HARD ROE**, familiarly applied to the spawn of the female: **SOFT ROE**, to the milt of the male. **ROE'STONE**, a familiar term for *Oolite*, from its being composed of a mass of small rounded grains or spherules, resembling the roe of a fish; larger-grained varieties are called *peastones* or *pisolites*, *peagrīts*, etc. Its scientific synonym *Oolite* is applied to that period in the earth's geological history in which the limestones with this structure chiefly occur.

ROE, *rō*, **EDWARD PAYSON**: author: 1838, Mar. 7—1888, July 19; b. New Windsor, N. Y. He studied at Williams College and the Auburn Theol. Seminary, was chaplain in the Federal army 1862–65, and 1865–74 held the ~~pastorate~~

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of a Presb. church at Highland Falls, N. Y. In the latter year he resigned his charge and settled on a farm which he purchased at Cornwall, N. Y., where he divided his time between authorship, in which he had already won considerable success, and the cultivation of small fruits and plants. A visit to Chicago soon after the great fire led to the writing of his first novel, *Barriers Burned Away* (1872), of which 69,000 copies were called for, and ten years later a cheap edition of about 100,000 copies was sold. All his stories deal with American life and scenery. Country life is described in *Nature's Serial Story*, the Charleston earthquake furnished interesting features in *The Earth Trembled*, and tenement-house life in New York is described in *Without a Home*. Among his numerous other works were *Opening a Chestnut Burr* (1874); *From Jest to Earnest* (1875); *A Knight of the Nineteenth Century* (1877); *Success with Small Fruits* (1880); *A Young Girl's Wooing* (1884); *Driven Back to Eden* (1885); and *Miss Lou* (1888). The MS. of the latter work was completed only a few days before his death. It is said that his stories have had a larger aggregate sale than those of any other American author. All his writings were marked with a purity of tone and a moral earnestness, which were recognized by all who knew him as characteristic of his personality, which was also peculiarly winning. He died, very suddenly, at his home in Cornwall.

ROE, rō, or ROE-DEER [Ice. *vá*; Ger. *reh*, *rehbock*, small kind of deer: Dan. *raa*], (*Cervus capreolus*, or *Capreolus dorcas*): small, elegantly formed, and agile species of Deer (q.v.), inhabiting Europe and parts of Asia, chiefly in hilly or mountainous regions that are either covered with forests or with scattered bushes and heath. It is seldom found in the higher and more naked mountain tracts, the haunt of the stag or red deer. It was formerly



Roebuck (*Cervus capreolus*).

plentiful in Wales and in hilly parts of England, as well as in s. Scotland. The R. is about 2 ft. 3 inches in height at the shoulder; weight about 50 or 60 lbs. Its color is a

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shining tawny-brown in summer, more dull and grizzled in winter, the lower parts and part around the tail white. There is considerable variety in the shade of color. The hair is longer than in many deer. The tail is very short, concealed among the hair. The horns, which are peculiar to the male (the *Roebuck*), are eight or nine inches long, erect, round, very rough, longitudinally furrowed; having, in mature animals, two tines or branches, which, as well as the tip of the horn, are sharp-pointed, so that the horns of the R. become very dangerous weapons when used for offense. The ears are large. The habits of the R. somewhat approach to those of the goat, or even of the chamois. It keeps its footing on rocks with great security, bounds very actively, and takes great leaps. Its usual pace, when not very hard pressed, is, however, a kind of canter. It is not gregarious, not more than a buck and doe with one or two fawns being usually seen together. Contrary to what is usual among deer, the male and female R. remain attached during life. The voice of the R., resembling that of a sheep, but shorter and more barking, is often heard through the night, in regions where it is plentiful. The browsing of the R. is very injurious to young woods, which has led to its extirpation in places where it would otherwise have been cherished. It feeds much on tender shoots of trees and bushes as well as on herbage. The venison is superior to that of the stag, but not equal to that of the fallow-deer. The horns are used for handles of carving-knives, etc. The R. is never very thoroughly tamed, and when partially so, is apt to become mischievous, and the male dangerous.—Another species of R. (*Cervus* or *Capreolus pygargus*), rather larger than the common R., is found in Tartary.—*Roebuck* is the male of the roe-deer: *Roe* is improperly applied to the adult female of the hart.

ROEBLING, *rö'bbling*, JOHN AUGUSTUS: civil engineer: 1806, June 12—1869, July 22; b. Prussia. He studied at the Royal Polytechnic School, Berlin, giving much attention to methods of constructing suspension bridges; graduated 1826, and for three years was in the govt. service as asst. engineer in building military roads. He then removed to Penn. and engaged in farming, but soon became interested in inland navigation through canals, and afterward in building of railroads and bridges. He surveyed the line of the Pennsylvania railroad over the Alleghany Mountains, constructed an aqueduct across the Alleghany river at Pittsburgh, supporting the structure by wire cables, built the suspension bridge at the same city over the Monongahela river 1846, and 2 years later built several suspension aqueducts for the Delaware and Hudson canal. He was the first man to manufacture wire, and wire cables, in America. After finishing the works above named he removed his manufactory to Trenton, N. J. In 1851 he began the famous suspension bridge over the Niagara river, with a span of 825 ft., supported by 4 cables each 10 in. in diameter; which was completed in 4 years, was the first railroad suspension bridge built, and was

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a marvel of engineering skill. He afterward built at Pittsburgh a fine bridge over the Alleghany river, and one over the Ohio river to connect Cincinnati and Covington. He was selected 1868 as chief engineer of the great East River bridge connecting New York and Brooklyn, prepared all the plans and specifications, and was superintending the initial operations of its construction when he received an injury which necessitated the amputation of one of his feet, and was followed by lockjaw which caused his death. The noble structure is his monument—designed by him, though its practical achievement is due to his son.

ROEBLING, WASHINGTON AUGUSTUS: civil engineer: b. 1837, May 26, at Saxenburg, Penn. He studied civil engineering at the Rensselaer Polytechnic Institute, graduated 1857, and began work under his father. He was in the Union army, serving with great credit through nearly all the civil war, and reaching the rank of maj. by promotion and col. by brevet. He assisted his father on the bridge at Cincinnati, and spent about a year in Europe studying the subject of pneumatic foundations. On the death of his father, 1869, he became chief-engineer of the East River bridge, the practical work on which had not then been commenced. His arduous labor on this vast and difficult construction soon seriously and permanently impaired his health; he was obliged to spend some time in Europe, and was long confined to his room; but retained full charge of the bridge till its completion 1883. During his illness his wife rendered him invaluable assistance in looking after details of the work. Since the completion of this bridge, the finest on the suspension principle in the world, he has been engaged in manufacture of wire. He published *Military Suspension Bridges* (1862).

ROEBUCK, rō'būk, JOHN ARTHUR: English politician: 1801–1879, Nov. 30; b. Madras, India. He passed his youth in Canada. At the age of 23, he came to England, and was called to the bar at the Inner Temple 1831. He entered parliament from Bath as a radical reformer 1832, serving till 1837; was again elected 1841, and held his seat till 1847. He represented Sheffield 1849–68, and was again returned 1874. In 1855 his motion for inquiring into the condition of the army before Sebastopol, was carried by an immense majority, and the administration of the Earl of Aberdeen was shattered to pieces. The ultimate result was the reconstruction of the war dept., and reorganization of the military, commissariat, and medical systems. On the annexation of Savoy and Nice 1860, R. indulged in the sharpest invective against Emperor Napoleon. During the civil war in the United States he strongly favored the secessionists. He warmly supported the Earl of Beaconsfield's policy during the Eastern crisis 1877–8, and 1878 was made a member of the privy council. R. was fearless and unmeasured in attack, not too charitable in his judgments, fond of personalities, but was regarded as an honest Englishman. He was author of a work on the *Colonies of England*, etc.

ROENTGEN RAYS.

ROENTGEN RAYS, *rént'gën rāz*, or X RAYS: lately discovered form of radiant energy that is emitted when the cathode rays of a Crookes tube strike on the opposite walls of the tube or on any object in the tube: discovered 1895 at Würzburg, Germany, by Prof. Wilhelm Konrad Roentgen. These rays resemble light in the respects that they move in straight lines; their intensity is inversely proportional to the square of the distance; they affect sensitive photographic films; they excite fluorescence in many substances; they are not deflected by a magnet, as are the cathode rays; they discharge electrified bodies; and they temporarily increase the electrical conductivity of many insulating materials. These rays differ from light in the respects that they have not as yet been refracted or polarized; they pass readily through most substances, even such as are opaque to the other forms of radiant energy; and they do not sensibly affect the retina. It is possible by means of these rays to see and photograph the shadows of bones, bullets, calculi, etc., through the fleshy parts of the body, since such objects are more opaque to the rays than is the flesh. The nature of these rays is unknown. They were called *X rays* by their discoverer because of that fact. They have been thought to be: longitudinal ether-waves (as opposed to light-waves, which are transverse); ether vortices; very long ether waves; ether streams; very short (ultra violet) light-waves. The last-named theory has probably the largest advocacy.

It was on 1895, Nov. 8, that Prof. Roentgen—prof. of physics in the Univ. of Würzburg, Bavaria—made the discovery which has rendered him famous. He announced it at the Dec. meeting of the Würzburg Physico-Medical Soc.; and in 1896, Jan. 4, described it at the celebration of the semi-centennial of the founding of the Berlin Physical Soc. Since that time not only have the scientific laboratories of the world been largely engaged in the study of the rays, but the sensational and superficial aspects of the phenomena have taken hold of the popular imagination and monopolized the attention of the unscientific world. It was while following up the researches of Hertz and Lenard on the problem of the cathode rays from a vacuum tube that Roentgen discovered the X rays. He had encased a Crookes tube in a covering of black paper impervious to ordinary light, but noticed that a sheet of paper sensitized with barium platino-cyanide, which was lying near by, was rendered luminescent. Investigation showed that the effect was caused by invisible ways or waves emanating from the tube and having unusual penetrative power. It merely remained for him then to study the properties of the newly found rays, and to announce the results of his researches to the world. Up to the present time (1897) the practical applications of the discovery of R. R. have been mainly in the fields of surgery and medical diagnosis. Prof. Czermak of Grätz, Austria, Prof. Edison, and others have endeavored to apply the new method to brain-study, but without satisfactory results.

ROERMOND, *rôr-mōnt'* (Fr. Ruremonde, called also by old writers Godsward [i.e., God's Island] op de Maas); old but lively town in the Netherlands, province of Limburg, at the junction of the Roer and the Maas. A suburb called St. Jacob is connected with R. by a beautiful stone bridge over the Roer. The cathedral is one of the handsomest churches in the Netherlands. Principal industries are weaving woolen cloths, cottons, making paper, pipes, wax and tallow candles, cotton-spinning, calico-printing, refining salt, etc. R. has often endured the horrors of being besieged and taken. Pop. (1890) 12,039, mostly Rom. Catholics.

ROGATION, n. *rō gā'shŭn* [F. *rogation*, rogation-day—from L. *rōgātiōnem*, a question—from *rogo*, I ask: It. *rogazioni*, rogation-week]: litany; supplication. **ROGATION-WEEK**, the second week before Whitsunday, so called from the prayers offered up on the first three days for the fruits of the earth, or as a preparation for the devotions of Holy Thursday—called specially **ROGATION-DAYS**. The *R.-days* (Lat. *Ferie Rogationum*), are the Monday, Tuesday, and Wednesday before Ascension-day, so called because on these days the Litanies (q.v.) were appointed to be sung or recited by the clergy and people in public procession. The practice of public supplications on occasion of public danger or calamity is traceable very early in Christian use; but the fixing of the days before Ascension for the purpose is ascribed to Mamercus, Bp. of Vienne, in the middle of the 5th c., who, on occasion of a threatened earthquake or other public peril in his city, ordered a public procession and prayer, for averting the Divine anger. The usage being in harmony with the spirit of the times, became general and permanent, and the form of prayer employed is that known as the *Litany of the Saints*. In England, after the Reformation, the recitation of the Litanies on these days was discontinued; but a memorial of the old practice long survived in the so-called Perambulation of Parishes (q.v.). The R. days are observed as days of fasting and prayer.

ROGER, *rŏj'ēr*, I., Count of Sicily and Calabria: founder of the Norman dynasty in these countries: about 1031–1101, July 11; b. Normandy; youngest of the 12 valiant sons of Tancred de Hauteville. He joined (1058) his brothers (see **GUISCARD**), who had gained possession of the greater part of s. Italy; was deputed by his brother Robert to conquer Calabria, which he speedily did. In 1060 he took from the Saracens and fortified Messina, making it the base of his future operations; and being joined by Robert, the two, at the head of their small band, performed almost miraculous exploits. They were gradually joined by the Christian inhabitants, and 1072 Palermo, cap. and stronghold of the Saracens, was yielded to the invaders. R. was then invested by his brother with the crown of Sicily, under the title Count; but not till 19 years afterward did he thoroughly supplant the Saracens, owing to the repeated reinforcements they received from Africa. R. had previously divided the country into fiefs, which he now distributed among his chief barons, whose relations to their subjects were regulated by him with justice and moderation. He had (1062) received from Rob-

ROGER II.—ROGERS.

ert a share of Calabria, to which, on Robert's death he added (1085) a number of towns, wrested from Roger and Bohemond, Robert's two sons. He was now the chief of the Hauteville family; and the fame of his exploits, and the greatness of his power, caused his alliance to be courted by the first princes of Europe. At this time he took the title 'Grand Count,' to distinguish him from his vassal barons, and 1098 he received from Pope Urban II. various prerogatives. The last acts of his life were the building and endowing of churches and monasteries, among others the Cathedral of Messina (1097). He died at Mileto in Calabria.

ROGER II., King of Sicily: about 1093-1154, Feb. 26 (reigned 1130-54); second son of Roger I. He greatly extended his dominions, adding the remainder of Calabria, Apulia, and claiming suzerainty, under gift of Anacletus the antipope, over the duchies of Naples and Capua. In return, R. established Anacletus on the pontifical throne 1130. At last, his bitter enemy, Innocent II., who had now become pope, fell into his hands 1139, and as the price for his liberty, was compelled to withdraw the excommunications that he had pronounced against R., and to consent to his retaining his new territories (except Naples), obtaining thus the firm attachment of R. to the papal see, and his own recognition as lawful pope. In 1141 R. received from Pope Lucius II. the right of using the staff, ring, tunic, mitre, and other symbols of ecclesiastical dignity and power. In 1146 he revenged himself on the Greek emperor, who had been of the league against him, by capturing Corfu, and pillaging Cephalonia, Negropont, Corinth, and Athens, returning with an immense booty, and a number of workers in silk who introduced the silk manufacture into Sicily. He next took Tripoli and other places on the African coast; and left at his death, an African dependency which stretched from Morocco to Kairwan. He died at Palermo. R. was, like his father, prudent and resolute, skilful in the cabinet and on the field; but he had neither the fine deportment nor the generous soul of the first Roger. His mind was capable of great scope and untiring energy, so that the material interests of his states were never overlooked, and the system of taxation and government was a pattern to the rest of Europe. He cared nothing for the religion of his subjects—they might be heathens if they chose; but obedience to himself and respect to the laws were rigorously enforced. His fleet was supreme on the seas, and his court surpassed in magnificence that of every other prince in Europe. He spent many of his later years in rearing splendid religious edifices.

ROGERS, *rōj'érz*, HENRY: English Congl. theological teacher and writer: died 1877, Aug. 20. He was educated at Highbury for the Congl. ministry, became prof. of Eng. literature in University College, London; was appointed to a theological professorship near Birmingham, and became principal of the Lancashire Congl. College 1858. *The Eclipse of Faith* is his best-known book. *Reason and Faith* was published 1866; *The Superhuman Origin of the Bible Inferred from Itself* 1874.

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ROGERS, JAMES EDWIN THOROLD: 1823-1890, Oct. 12; b. West Meon, Hampshire, Eng.: political economist. He was educated first at King's Coll., London, and entered Magdalen Hall, Oxford, 1843; he graduated with highest honors 1846. Soon afterward he took orders in the Church of England, but formally renounced them some years later when enabled so to do by act of parliament. Till 1856 he was a private tutor at Oxford, and acted as examiner in the final classical school 1857,8; was appointed Drummond prof. of political economy 1862, but on the expiry of his term 1867, was denied reappointment, on account of his radicalism. He sat in parliament for Southwark 1880-86. On the death of Bonamy Price, his successor as prof. of political economy, R. was again appointed to that chair, 1888, with unanimous approval of friends and opposers. A few of his numerous publications are: *The History of Agriculture and Prices in England from 1259 to 1793* (6 vols. 1866-88), his greatest work; *The Economic Interpretation of History* (1886); *Six Centuries of Work and Wages*, (1885), of which the author prepared and published two different abridgments; *The First Nine Years of the Bank of England* (1887).

ROGERS, JOHN. D.D.: English clergyman and martyr: 1505-1555. Feb. 4; b. Birmingham; educated at Cambridge. While officiating as chaplain to an English company at Antwerp for several years, he renounced popery, through the influence of Tyndale and Coverdale, and became pastor at Wittenburg. In 1548 (the year following the accession of Edward VI., when a new impulse was given to the Reformation, under Abp. Cranmer), he returned to England. Bp. Ridley made him rector of St. Margaret Moyses and vicar of St. Sepulchre, London; also prebendary of St. Paul's and St. Pancras, and, later, rector of Chigwell. On the Sunday following the triumphal entry of Queen Mary into London, 1553, Aug. 3, he addressed the people at St. Paul's cross, inveighing against popery, and exhorting them to abide in the reformed faith taught in the preceding reign. Arraigned before the privy council, his defense procured him release; but, Aug. 18, he was ordered to confine himself to his own house, and, six months later, he was imprisoned in Newgate. At his trial before Bp. Gardiner 1555, Jan., he was condemned to be burned at Smithfield. To the last he exhibited fortitude and calmness. He translated Melanchthon's *Weighing and Considering of the Interim*. His most important work was an ed. of the Bible, 1537, in which he combined Tyndale's and Coverdale's versions with his own supplementary work, and added notes; it was published under the assumed name of Thomas Matthew, and by that name it is known. His record of his examinations, and other papers, written while he was a prisoner, were preserved, and are in *Foxe's Martyrology*.

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ROG'ERS, JOHN: sculptor: b. Salem, Mass., 1829, Oct. 30. He studied at the high school in Boston, and after serving as clerk in a dry goods store, worked in a machine shop, where he began modelling in clay. He visited Europe 1858, and the next year made a group for a Chicago fair which gave him some reputation. *The Slave Auction*, 1860, greatly increased his fame. He has since produced a large number of statuette groups which have been extremely popular. They are known as Rogers's Groups, and illustrate a wide variety of subjects, from common life to characters from Shakespeare. His fine equestrian statue of Gen. Reynolds has been placed before the city hall in Philadelphia.

ROG'ERS, RANDOLPH: sculptor: born Waterloo, N. Y., 1825, July 6. At the age of 23 he began the study of art in Rome; had a studio in New York 1850-55, and after the latter date lived in Italy. One of the works that first brought him into notice was *Ruth* (1851). The bas-reliefs on the bronze doors of the National Capitol, which represent scenes in the life of Columbus, were designed by him 1858. Three years later he completed the Washington monument at Richmond, to which he added various statues and ideal figures; and soon afterward completed the *Angel of the Resurrection* for the monument of Col. Colt, at Hartford. Among his works are memorial monuments in Providence and other cities; portrait statues of Lincoln, in Fairmount Park, Philadelphia; and of William H. Seward, in Fifth Avenue and Broadway, New York; and an equestrian group of American Indians. He d. 1892, Jan. 15.

ROG'ERS, ROBERT: soldier: 1727—about 1800; b. Dunbarton, N. H. In the old French war he organized and led a company which became famous under the name Rogers's Rangers. He received from Pontiac the surrender of Detroit; visited England, printed and gave his *Journal* to the king; was appointed gov. of Mackinaw, Mich.; but was suspected of a design to betray the fort to the French, and was court-martialled at Quebec. He made another visit to England 1769; and having returned to the colonies, was arrested, early in the revolution, and released on parole by the continental congress; was afterward suspected as being a spy, and was again examined by congress; and at length in spite of his parole, became a col. in the British army and organized an efficient company known as the Queen's Rangers. He afterward went to England, and was proscribed by congress 1778. He published *A Concise Account of North America* (1765), and other works. He died in England, 1892, Jan. 15.

ROG'ERS, SAMUEL: English poet, littérateur, and celebrated entertainer of celebrities: 1763, July 30—1855, Dec. 18; b. London; son of a wealthy banker, who was a member of a dissenting church. After a careful education R. was placed in his father's bank. His taste for literature and the company of literary men awoke in youth; and he with a friend, went one day to call on Dr. Johnson, then living at Bolt Court; but his courage failed him when his hand was on the knocker. In 1786 he published his

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first book, *An Ode to Superstition, and Some Other Poems*. In 1792 he published *Pleasures of Memory*, a work received at the time with much favor: it was the last great effort of the 18th c., poetic diction—carefully elaborated, elegant, serious, elevated, and aiming to elevate familiar things and commonplace thoughts by presenting them in abstract terms and impressive imagery; but frigid and lifeless. After this, R. retired from business, and in the possession of ample wealth, in his house in St. James's Place, he employed himself with literature, his cook, the company of the literary celebrities of his time, and the collecting of pictures and articles of virtù. Then, and during all his subsequent life, his breakfasts were more famous than his poems: critics might find fault with the one, but not with the other. His house became the literary social centre for London: all celebrities could be met there. R. not only entertained, he also generously aided literary men in their troubles: he helped Sheridan in his last days, and Moore and Campbell in their need, and others less distinguished.

In 1812 he published *Columbus*; in 1814, *Jacqueline* appeared in the same vol. with Lord Byron's *Lara*. In 1819 he issued *Human Life*; in 1822, *Italy*, an edition of which, illustrated by the best artists at the cost, it is said, of \$75,000, appeared 1836. After this date, he published nothing—his time being given mainly to taste, dining, epigram, and anecdote. The aged poet rode or strolled in the parks haunted picture-galleries, and was a constant attender at the opera. An accident in the street at last confined him to his room; and at the age of 93 he died. He read Goldsmith's *Traveller* when it was published, and he might have read Tennyson's *Maud*. He published his first book before Burns's first volume appeared at Kilmarnock.—Since R.'s death his *Table Talk* has been published. R.'s best work is his *Italy*, which has long had numerous readers: it is instructive, vivid, interesting, graceful, and pleasing in style.

ROGERS, WILLIAM BARTON, LL.D.: geologist: 1804, Dec. 7—1882, May 30; b. Philadelphia. He studied at William and Mary College, in which institution he became prof. of physics and chem. 1828, holding the position 7 years. He was prof. of geology and nat. philos. in the Univ. of Virginia 1835–53, and in the former year organized a geological survey of Va., of which he published 6 reports, re-issued as *Papers on the Geology of Virginia*. With his brother, Henry Darwin R., he developed the wave theory of mountain-chains. Removing to Boston 1853, he became active in scientific circles, was one of the founders and the first pres. of the Massachusetts Institute of Technology; pres. of the Amer. Assoc. for Advancement of Science 1875, first pres. of the Amer. Social Science Assoc., one of the founders of the National Acad. of Sciences, and its pres. for the four years preceding his death. He died at Boston.—His brother, JAMES BLYTHE R., M.D. (1802–1852, June 15; b. Philadelphia), was educated at William and Mary College, became prof. of chem. in Washington Medical College, Baltimore; afterward prof. at Cincinnati; and assisted his brother, Wil-

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liam Barton R., in the geological survey of Va.; removed to Philadelphia 1840 and assisted his brother, Henry Darwin R., Penn. state geologist; was prof. of chem. at the Franklin Institute 1844-47, and from 1847 in a similar position in the Univ. of Pennsylvania.—Another brother, ROBERT EMPIE R., LL.D. (1813-1884; b. Baltimore), studied medicine and chem. at the Univ. of Pennsylvania; was prof. of chem. in the Univ. of Virginia 1842-52; succeeded his bro., James Blythe R., as prof. in the Univ. of Pennsylvania, a position which he held for 25 years, being dean of the med. dept. 1856-77. He was prof. of chem. in Jefferson Medical College 1877-84. He held govt. positions involving duties at the mints.

ROGUE, n. *rōg* [F. *rogue*, supercilious: Bret. *rok*, *rog*, haughty, insolent]: an idle disreputable person; a vagrant; a sturdy beggar; a dishonest person; a familiar term of slight endearment; a sly fellow. ROGUERY, n. *rō-gér-ī*, cheating; dishonest practices; waggery. RO'GUISH, a. *-gīsh*, fraudulent; dishonest; waggish; slightly mischievous. RO'GUISHLY, ad. *-lī*. RO'GUISHNESS, n. *-nēs*, the quality or state of being roguish; mischievousness; sly cunning. ROGUE MONEY, in *Scotland*, ancient annual assessment in every county for defraying the expense of apprehending offenders, subsisting and prosecuting them. ROGUE'S MARCH, an air played when a soldier is drummed out of a regiment. ROGUE'S YARN, yarn of different twist and color to the rest, inserted in the royal cordage to distinguish it from that used in the merchant service.

ROHILCUND, *rō-hīl-kūnd'*, or ROHILKHAND: extensive region in the N. W. Provinces of India; west of Oude, and named after the Rohillas, an Afghan tribe which migrated thither in the 18th c.—As an administrative *division* (10,884 sq. m.; pop. 1891, 5,345,740) it comprises the districts Bijnur, Moradabad, Bareilly, Budaon, Shahjehanpur, Pilibhit, and the protected state of Rampur.

ROHLFS, *rōlfs*, ANNA KATHARINE (GREEN): author: b. Brooklyn, N. Y., 1846, Nov. 11. She graduated from Ripley Female College, Poultney, Vt., 1867. When eleven years of age she began writing poetry and stories, but did not win recognition till her *Ode to Grant* was published in the New York *Tribune* and other prominent republican papers on the day of his first inauguration. Several of her short poems appeared in the *Atlantic Monthly*. Her first novel, *The Leavenworth Case* (1878), was a remarkable success: it has been pronounced by critics the best detective story ever written. Among her books are: *A Strange Disappearance* (1879); *The Sword of Damocles* (1881); *The Defense of the Bride, and Other Poems* (1882); *The Mill Mystery* (1886); *A Matter of Millions* (1890); and *The Forsaken Inn* (1890). Some of her novels have been dramatized and her songs set to music. She was married to Charles Rohlf, 1884, Nov. 25, but her pen name remains Anna Katharine Green. She spent a large part of 1890 in Europe. Her home, formerly in Brooklyn, is now in Buffalo, N. Y.

ROHTUK—ROLAND.

ROHTUK, *rō tāk'*: town of Brit. India, cap. of the dist. of R., in the division of Hissar, Punjab, 42 m. n.w. from Delhi. A water-course, 45 m. long, constructed by order of the British govt. 1825, supplies R. and the neighboring country with water from the great Feroze-shah canal. Pop. (1881) 15,699; of dist, 553,609.

ROIL, *v. royl* [Icel. *rugla*, to mingle together in confusion]: to render turbid, as wine or other liquor, by stirring up the sediment; to excite to anger or resentment; to vex and disturb. **ROIL'ING**, imp. **ROILED**, pp. *royld*. Also spelled **RILE**, *v. ril*. **RIL'ING**, imp. **RILED**, pp. *rīld*.

ROIL, *v. royl* [Icel. *róla*, to wander about: Swiss, *rollen*, to run hither and thither]: in *OE.*, to range; to wander about. **ROIL'ING**, imp. **ROILED**, pp. *royld*.

ROISTER, *v. roys'tér* [F. *rustre*, a swaggerer; OF. *ruste*, a rustic—from L. *rusticus*, rustic—from *rus*, the country: comp. Bret. *rouestler*, a disturber: Gael. *riastair*, to become turbulent: Low Ger. *rastern*, to clatter]: to behave turbulently; to bluster. **ROIS'TER**, *n.*, or **ROIS'TERER**, *n.* -*ér*, a rude, blustering, turbulent fellow. **ROIS'TERING**, imp.: **ADJ.** noisy; uproarious; violent. **ROIS'TERED**, pp. -*térd*. **ROIST'ING**, *a.* *OE.* for **ROISTERING**.

ROLAND, *rō'land*, **LEGEND OF**: one of the most ancient and popular epics of early French or Frankish literature; having for its hero Roland, according to tradition, the favorite nephew and capt. of Emperor Charlemagne. In 778, when Charlemagne was engaged at Paderborn in organizing the government of the recently-subjugated pagan Saxons, and superintending their collective baptism and formal admission into the Christian Church, he was visited by a Saracen chief, who unwilling to recognize the supremacy of the Caliph of Cordova, offered to put the Frankish sovereign in possession of several towns s. of the Pyrenees which were under his rule. Charlemagne, accepting the offer, marched with a numerous army through the territory of Gascony, whose duke, Loup, he constrained to do him homage, and took Pampelona and Saragossa. Finding, however, that his Saracen ally gave him but little aid, he turned back toward France; and it was during this retreat, while the Christian army was slowly threading its way through the narrow valley of Roncevaux or Roncevalles (q. v.) that Roland, commander of the Marches of Bretagne, who commanded the rear-guard, was suddenly attacked by a large body of Vascons, lying in ambush in the surrounding woods, and slain while fighting gallantly. Beyond these meagre details, all that we read of R. is traditional. The oldest version of the *Song of Roland*, forming part of the *Chansons de Geste*, which treat of the achievements of Charlemagne and his paladins, belongs to the 11th c., though the original compositions are probably not much later than the period to which they refer. Throughout the middle ages, the *Song of Roland* was the most popular of the many heroic poems current, and William of Normandy, on his way to conquer England, had it sung at the head of his troops, to encourage them on their

march. At the present day, the traditionary memory of the heroic paladin is held in honor by the mountaineers of the Pyrenees, among whose dangerous defiles the scene of his exploits and death is laid.

According to the poem, Charlemagne had been six years in Spain, when, resolving to return to France, he, by the advice of R., sent his capt., Ganelon, on an embassy to the pagan king, Marsilius of Saragossa, to receive the homage which that king had pledged. The mission was a dangerous one, as all other ambassadors to the king had been slain, and Ganelon, wishing to revenge himself on R., perfidiously betrayed to Marsilius the route which the Christian army was to take. The consequence was, that after Charlemagne had safely crossed the mountains with the main part of his forces, R., who commanded a rear-guard of 20,000 men, was surprised within the narrow valley of Roncevalles, by a terrible army of all the pagan nations of the world. R., who possessed an enchanted horn, which could have been heard far beyond the mountains, might have recalled his uncle, but, despising such pusillanimity, he fought on till 100,000 Saracens lay slain around him and the 50 warriors who alone remained alive to aid him. Another army of 50,000 men of Carthage, Ethiopia, and Candia now pours down upon him. At length he blows his horn, which is heard by Charlemagne, who, however, does not return, as Ganelon persuades him once, twice, and thrice that R. is only hunting the deer; and not until the veins of R.'s neck have burst with the violence of the blast, does the emperor retrace his steps. In the meanwhile, R. has dragged his dying limbs to the foot of Mount Cisaire, above Roncevalles, where, after having sung his death-song and thrown his trusty and enchanted sword Durandal into a poisoned stream, where it stills remains, he dies exhausted from his many wounds. Charlemagne, who arrives too late to save him, avenges his death in a series of marvellous battles and bloody victories.—The 83d impression of Léon Gautier's edition of the *Chanson de R.* appeared 1881. See Bartsch, *Das Rolandslied* (1874).

RO'LAND FOR AN OLIVER, blow for blow: said of antagonists who prove themselves equal to each other in every point of combat, after the manner of *Roland* and *Oliver*, who, according to the legend, fought for five consecutive days on an island in the Rhine without either getting the least advantage of his adversary.

ROLAND, *ro-lōng'*, MANON JEANNE (PHLIPON), Madame: 1754, Mar. 17—1793, Nov. 8; b. Paris; wife of Jean Marie R. The precocity of her intelligence was remarkable. At the age of four, she had a passion for reading; at seven, she learned by heart a treatise on heraldry; at eight, she used to carry Plutarch with her to church, while the *Jerusalem Delivered* of Tasso, and the *Télémaque* of Fénelon, fired her childish imagination. At the same time, an ardent piety began to develop itself, and, when only 11, she entered the *Maison des Dames de la Congrégation*, in the Faubourg Saint-Marcel. Here she formed close friendship with two young girls from Amiens, Henriette and Sophie

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Cannet, particularly with the latter, which was fruitful in consequences. On her return to her father's house after the lapse of two years, a change ensued: she no longer cared for the so-called 'religious' writers—the defenders of the creeds and the church. Her faith was slowly changing from the dogmatic creed of Bossuet to the 'naturalism' of the Encyclopédistes and 'Philosophes.' In ethics, now as ever, her preference for the stoical system was marked. Shortly after the death of her mother, 1773, she read for the first time *La Nouvelle Héloïse*, which seemed to her (as it has to many another young impassioned soul) a veritable revelation. At the age of 25 (1780, Feb. 4) she was married to Roland (q.v.). Her influence quickened and heightened his revolutionary zeal. She was a bold thinker and a brilliant writer, and her political contributions to periodicals, often under her husband's name, commanded wide attention. After their removal to Paris (1791, Jan.), Madame R.'s salon soon became the centre for the republican leaders. Thenceforward her career was identical with her husband's until his flight from Paris, 1793, May 31. The same night, she was herself arrested, and imprisoned in the Abbaye. A more dauntless and intrepid spirit never entered its walls. Released June 24, she was instantly rearrested by the very commissaries who had set her at liberty, without the shadow of a tangible accusation, and confined in Sainte-Pélagie. Madame R. spent the period of her imprisonment in study, in the composition of her political *Mémoires*. Summoned before the Revolutionary Tribunal in the beginning of Nov., she was condemned, and on the 8th was guillotined, amid the shoutings of an insensate mob. It is said that while standing on the scaffold, she asked for a pen and paper that she might 'write down the strange thoughts that were passing through her head.' Only a genuine child of the French republic could have been so ostentatiously speculative at such a moment. Still more celebrated is her apostrophe to the statue of Liberty, at the foot of which the scaffold was erected: 'O Liberty, what crimes are committed in thy name!' or, according to another version: 'Liberty, how they have played with thy name!'—See *La Correspondance de Madame Roland avec les Demoiselles Cannet* (2 vols. Paris 1841); *Lettres Autographes de Madame Roland, adressées à Bancal des Issarts* (Paris 1835).

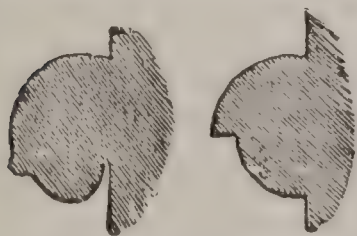
ROLAND (DE LA PLATIERE), *ro-lông' deh lá plá-te-är'*, JEAN MARIE: French minister of the revolutionary period. 1734, Feb. 18—1793, Nov. 15; b. Mizey, near Villefranche (Beaujolais). His first independent appointment was that of inspector-ordinary at Amiens. In 1775 he met Manon Jeanne Phlipon, a young woman of brilliant genius and fascinating manners, and, after a courtship of four years, they were married, 1780, Feb. 4. When the Revolution broke out, 1789, R. and his wife became decided partizans of the movement. In 1791 he was sent to Paris, by the municipality of Lyon, to represent to the Constituent Assembly the deplorable condition of the Lyonnese weavers. After the dissolution of the Constituent Assembly, he

RÔLE—ROLL.

founded at Lyon the *Club Central*, the members of which, marked by their attachment to constitutional liberty, received the name of *Rolandins*. Toward the close of 1791, he fixed himself at Paris, and soon became one of the heads of the Girondist or moderate section of the republicans. 1792, Mar., he was appointed minister of the interior, but resigned 1793, Jan., despairing of seeing moderate counsels adopted. After placing his accounts in the hands of the Assembly, he asked permission to withdraw from Paris, but it was refused, and an illegal attempt was made to arrest him, which failed. Immediately afterward he fled, and concealed himself in Rouen. When news reached him of the beheading of his wife, he wandered some miles to a small village in the environs of Rouen, and there, maddened with grief and despair, committed suicide. R. wrote and published several memoirs and disquisitions on branches of industry, besides 6 vols. of *Letters* addressed to his wife before their marriage, from Switzerland, Italy, Sicily, and Malta.

RÔLE, n. *rôl* [F. *rôle*, a roll, a scroll—from L. *rotûla*, a little wheel; *rota*, a wheel]: a part or character in a play or other public performance.

ROLL, v. *rôl* [OF. *roler*; F. *rouler*; mid. L. *rotûlārē*, to roll—from L. *rota*, a wheel: It. *rotolare*; Dut. and Ger. *rollen*; Icel. *rulla*; Dan. *rulle*, to roll]: to move by turning over and over; to move round, as a wheel; to revolve; to cause to revolve; to involve; to form or be formed into a round mass; to wrap round upon itself; to spread or flatten by means of a roller or cylinder; to drive with a circular motion, or forward, as in a stream; to perform a periodical revolution; to move, as waves; to sound as a drum, the



Roll Molding.

strokes producing a continuation of sounds; to be tossed about, or to move from side to side, on rough water, as a ship; to run on wheels; to move tumultuously: N. act of rolling; state of being rolled; thing rolling; mass made round [F. *rouleau*]; writing or paper rolled upon itself; any-

thing wound into a cylindrical form; twist of tobacco; small piece of baked bread: in *arch.*, a round molding—sometimes modified by introduction of a fillet, and then called the roll-and-fillet molding: *anciently*, a volume; public document; register or catalogue; chronicle. **ROLL'-ING**, imp.: **ADJ.** revolving; movable: N. motion of a ship from side to side. **ROLLED**, pp. *rôld*. **ROLLER**, n. *rôl'ér*, long round body of wood, stone, or iron, used to press, crush, grind, or smooth: in *surg.*, long broad bandage of cotton or linen: in *agri.* (see below): in *printing* (see below). **ROLL'ERS**, n. plu. *-érz*, tumbling heavy waves of a ground swell; huge rolling waves. **LONG-ROLL**, in *mil.*, prolonged roll of the drums, as the signal for an attack, or for troops to fall into line. **ROLLING-CHOCKS**, n. *rôl'ing-chôks*, or **ROLLING-CLEATS**, n. *-klêts*, in *naut.*, jaws on a yard to steady it against the mast when a ship rolls. **ROLLING-MILL**,

ROLLER.

heavy steel rollers for reducing red hot masses of iron, copper, etc., to bars or thin plates, or sheets (see IRON). ROLLING-FIN, round piece of wood for pressing and shaping dough or paste. ROLLING PRAIRIE, undulating prairie-land in N. Amer. ROLLING-PRESS, press consisting of two rollers. ROLLING STOCK, locomotives, carriages, and wagons belonging to a railroad company. ROLLS, n. plu. *rôlz*, a part of London between the City and Westminster, enjoying certain liberties, so called from the court *rolls* or law records formerly deposited in its chapel: office where the Brit. chancery records are kept, hence 'the master of the rolls'—that is, 'the judge of the court' (see MASTER OF THE ROLLS). ROLLS OF COURT or OF PARLIAMENT, etc., the parchments, etc., on which the list of causes depending, or of the acts and proceedings, is engrossed. TO CALL THE ROLL, to recite a list or register of the names of persons, as of a school, college, or of any organized body of persons, to ascertain their presence or absence. ROLLER-SKATES, wooden bases or soles for the boots under which are small movable wheels for skating on smooth level surfaces not formed of ice.—SYN. of 'roll, n.': catalogue; list; schedule; inventory; register.

ROLLER: agricultural implement, long in use, consisting of a cylinder of wood, stone, or iron, placed in a frame, so as to revolve like a wheel, and drawn over the land by a horse. The weight of the R. is greater or less according to the purpose for which it is intended: the breaking of stiff clay clods, the consolidating of very light soils after frost, the hardening of the surface of the ground to check evaporation, the levelling of an uneven surface before harvest operations, etc. The introduction of hollow cylinders of iron, instead of solid ones of wood or stone, was the first improvement on the old simple implement; which was afterward further modified by dividing the cylinder into two parts, to give greater facility in turning, and to diminish its injurious action in scraping the soil before it while turning; and this process of division being carried further, with other modifications, giving each part or wheel a more independent action, and breaking up the uniformity of surface by giving a raised wedge-like edge to the circumference of each wheel, the result is a *clod-crusher*.

ROLLER: part of the inking apparatus in letter-press printing; of modern invention. In the old process of applying ink to the surface of types, stuffed leather balls or cushions were used, inapplicable to cylinder-printing. The first improvement on the stuffed balls consisted in covering them with a soft and elastic composition. Catching at this idea, the inventors of cylinder-printing machines made rollers by coating longitudinal and rounded pieces of wood with the composition, by means of casting in a mold. This invention came generally into use 1814-18, rendering printing machinery practicable.

A R. may be of any length, to suit work of different kinds; for hand-presses it is usually about 30 inches long, but longer for machines, according to their dimensions.

ROLLER.

The thickness is about 3 inches, of which the composition on the wood is probably three-quarters of an inch all round. The composition now used is of glucose (with a little glue) and glycerine in about equal parts, somewhat resembling soft India-rubber. In summer, it is necessary to use a somewhat larger proportion of glucose than in winter, to secure suitable firmness. Rollers, in time, shrivel and become hard by use, and the composition may then be remelted, with some small addition of new materials. In all cases, the rollers require to be kept very clean, and suspended in a rack when not in use.

ROLL'ER (*Coracias*): genus of birds long generally referred to the Crow family (*Corvidæ*), but by many recent naturalists to the Bee-eater family (*Meropidae*), and to the King-fishers, with which they regard the habits and colors of the species as indicating a closer alliance. The bill is moderately large, compressed toward the point, straight, the upper mandible curved downward at the point, the sides bristled at the base, the gape wide; the legs short and strong; the wings long. The colors are in general very brilliant. Swainson says of the **BLUE-BODIED R.** (*C. cyanogaster*) of w. Africa, that 'no effort of art can possibly do justice to those inimitably rich lines of ultramarine, beryl color, and changeable fawn, with which it is ornamented; for there are no tints



Roller (*Coracias garrula*).

hitherto discovered, either mineral or vegetable, which will enable the painter to produce their successful imitation.' The species are numerous, all natives of the old world, and mostly of the warmer parts of it. One only is found in Europe, the **COMMON R.** (*C. garrula*), a bird nearly equal in size to a jay; with head, neck, and wing-coverts greenish blue, other shades of blue strongly marked in the wings. This bird is abundant in n. Africa and in w. Asia; it is partially migratory, and is rare in Britain. It tosses its food, which consists of insects or parts of plants, into the air before eating it, swallowing it when it falls in a proper direction for entering the throat. The name R. is derived from its habit of rolling or tumbling in the air like a tumbler-pigeon. It is an inhabitant of woods. It is very shy, and the sportsman always finds it difficult of approach. In countries where it abounds, as in some islands of the Mediterranean, it is in high esteem for the table.

ROLLIC—ROMAGNA.

ROLLIC, or **ROLICK**, v. *rōl'lik* [Scot. *rollochin*, lively, free-spoken: prov. Eng. *rallack*, to romp: Sw. *rolig*, merry: Gael. *roilig*, a frolicsome person]: to move or act with a careless swaggering air. **ROL' LICKING**, imp.: **ADJ.** rudely boisterous in merriment; careless; swaggering. **ROL' LICKED**, pp. *-likt*.

ROLLIN, *rōl'in*, F. *rol-läng'*, **CHARLES**: French historian: 1661, Jan. 30—1741, Dec. 14; b. Paris. He studied at the Collège du Plessis, where, 1687, he became prof. of rhetoric. In 1688 he was called to the chair of eloquence at the Collège Royal de France; 1694 he was chosen rector of the Univ. of Paris, signalizing his brief tenure of two years by many reforms—e.g., his revival of the study of Greek, then falling into neglect. In 1699 he was appointed coadjutor to the principal of the College of Beauvais; but was removed 1712, through the machinations of the Jesuits, for R. was a strenuous Jansenist. In 1720 he was re-elected rector of the univ.; and 1726 published his *Traité des Études*, which Villemain has pronounced 'a monument of good sense and taste,' and which is his best literary performance. His *Histoire Ancienne* (Paris 12 vols. 1730-38), for several generations prodigiously popular, and translated into English and other languages, is feeble in its philosophy, jejune in its criticism, and often inaccurate in its narrative. Nevertheless, to multitudes, both in Europe and America, it has well served as an introduction to the study of ancient history.

ROLLIN, **LEDRU**: see **LEDRU-ROLLIN**.

ROLLOCKS, *rōl'locks*, for **ROWLOCKS**: see under **Row 1**.

ROLL OF ARMS: heraldic record of arms, either verbally blazoned, or illuminated, or both, on a long strip of vellum, rolled up, instead of being folded into leaves. Rolls of arms are the most important and most authentic materials for the history of early heraldry. In England, they go back to the reign of Henry III., the oldest being a copy of a roll of that reign, containing a list of the arms borne by the sovereign, the princes of the blood, and the principal barons and knights, 1216-72, verbally blazoned without drawings. The original has been lost; but the copy (1586), called 'Glover's Roll,' is in the English College of Arms. The *Roll of Caerlaverock* is a heraldic poem in Norman-French, reciting the names and arms of the knights at the siege of Caerlaverock, 1300.

ROLY-POLY, or **ROLLY-POLY**, n. *rōl'ī-pōl'ī* [said to be a compound of *roll*, and *pool*, a hollow]: a game in which a ball rolling into a certain hollow place wins; a pudding formed of a sheet of paste on which a conserve of fruit is spread, then rolled up and cooked.

ROMAGE, n. *rōm'āj* [see **RUMMAGE**]: in *OE.*, active and tumultuous search for; disturbance; tumult.

ROMAGN'A: see **PAPAL STATES**

ROMAÏC—ROMAINE.

ROMAÏC, n. *rō-mā'ik* [F. *Romaïque*: mod. Gr. *Romā-ikos*]: a term applied to the modern Greek tongue: ADJ. of or relating to modern Greece, or its language.

ROMAINE, *ro-mān'*, WILLIAM: clergyman of the Church of England, noted for the ardor with which he preached 'evangelical' and Calvinistic doctrines in an age of religious apathy: 1714, Sep. 25—1795, July 26; b. Hartlepool; son of a French Prot. refugee. R. was ordained a priest in the Church of England 1738, and immediately obtained a curacy near Epsom. In 1739 he published a sermon preached before the Univ. of Oxford, which led to a controversy with Bp. Warburton. In 1748 he was chosen lecturer of St. Botolph's in London, and in the following year lecturer of St. Dunstan's in-the-West. Two years later, he was appointed assistant morning-preacher at St. George's; but was afterward deprived of the situation by the rector, Dr. Trebeck, who was jealous of his popularity, and averse to the 'plainness' of his preaching. His 'evangelicalism' grew with his years; and at length, 1757, in a sermon on *The Lord Our Righteousness*, it became so offensive to the torpid dons of Oxford that the univ. pulpit was closed against him. In 1756 he became curate and morning preacher at St. Olave's, Southwark, a situation which he exchanged in the course of a year for a preachingship at St. Bartholomew the Great, near West Smithfield. In 1766 he was chosen by the parishioners rector of St. Andrew, Wardrobe, and St. Anne, Blackfriars, an office which he held till his death. R. published: *Twelve Sermons upon Solomon's Song* (1759); *Twelve Discourses upon the Law and the Gospel* (1760); *The Life of Faith* (1763); *The Scripture Doctrine of the Sacrament of the Lord's Supper* (1765); *The Walk of Faith* (1771); *An Essay on Psalmody* (1775); *The Triumph of Faith* (1795). His works were republished in a collected form, 8 vols., 1796.

ROMAN—ROMAN ARCHITECTURE.

ROMAN, a. *rō'man* [L. *Romānus*, a Roman—from *Roma*, Rome]: pertaining to Rome (q.v.) or its people; pertaining to the pope; papal; the type commonly used in printing, as distinguished from the Italic: N. a native or citizen of Rome. **ROMANESE**, n. *rō-man ēz'*, language of the Walachians, spoken in Walachia, Moldavia, and parts of Hungary. **ROMANZA**, n. *rō-māntz'a* [It.]: in *mus.*, a romance. **ROMANZIERI**, n. *rō-māntz-ī-ā'rē* [It., romancists]: a school of Italian poets, who took for their subjects the romances of France and Spain, especially those relating to Charlemagne and his knights. Ariosto is the chief poet of the school. **ROMANIC**, a. *rō-mān'ik*, derived from the Roman alphabet. **ROMANISM**, n. *rō'man-izm*, the tenets of the Church of Rome (see **ROMAN CATHOLIC CHURCH**). **RO'MANIST**, n. *-ist*, adherent of the Church of Rome. **RO'MANIZE**, v. *-iz*, to convert or to conform to the Rom. Cath. religion; to Latinize. **RO'MANIZING**, imp.: **ADJ.** tending or leading toward the Church of Rome. **RO'MANIZED**, pp. *-izd*: **ADJ.** inclined toward the Roman language, or to the Church of Rome. **ROMAN CATHOLIC**, a. applied to that form of the Christian religion of which the pope, the bishop of Rome, is the acknowledged chief or head: N. one who professes that form of Christianity (see **ROMAN CATHOLIC CHURCH**). **ROMAN CATHOLICISM**, *kā-thōl'ī-sizm*, the doctrines and practices of the Rom. Cath. Chh. **ROMAN CEMENT**, cement or mortar, formed from an argillaceous carbonate of lime calcined, used in the surface-fronting of brick and other buildings to imitate stone, which art was brought from Italy; a hydraulic cement (see **CEMENT**). **ROMAN CANDLE**, a firework in form of a large candle which throws up colored balls. **ROMAN INDICTION**: see **INDICTION**. **ROMAN LAW**, name given to the body of laws founded on the laws and statutes of anc. Rome, and incorporated more or less into the laws of every country of Europe, and into laws in the United States (see **LAW** [Established Rule]—References). **ROMAN-OUCHRE**, n. *-ō'kēr*, a pigment of rich, deep, and powerful orange-yellow color, transparent and durable. It is used, both raw and burnt, in oil and water-color painting. The coloring matter is oxide of iron mixed with earthy matter. **ROMAN ORDER**, in *arch.*, the Composite order. **ROMAN SCHOOL**, n. in *art*, the style formed or prevalent at Rome in the beginning of the 16th c.; remarkable for its solid and legitimate effects. The works of Raphael exhibit this school in its full development, and he is accordingly considered its head. **ROME NOT BUILT IN A DAY**, great achievements or undertakings can only be accomplished by patience and perseverance.

RO'MAN AL'UM: see **ROCHE ALUM** (under **ROCHE**).

RO'MAN AR'CHITECTURE: the mixed architectural style of ancient Rome. Of the early architecture of Rome and the other Latin cities, comparatively little is known. With the conquest of Carthage, Greece, and Egypt, the Romans became acquainted with the arts of those countries, and began to endeavor to use them for the embellishment of the imperial city. Besides, Rome under the empire was the capital of the world, and attracted artists from every

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country. The result was that the architecture of Rome became a mixed style. It was all imported, and partook of the character of the importers. The great interest of R. A. is, that it is a mixture and amalgamation of all ancient styles, and the starting-point for all modern styles. It is thus the connecting link between ancient and modern art; the whole history of R. A. being that of a transition, slow but steady, from the external architecture of the Greeks to the internal architecture of the Christians. Rome borrowed from Greece the oblong peristylar temple, with its horizontal construction and decoration, and the various 'orders.' See COLUMN: GRECIAN ARCHITECTURE. From the Tuscans, probably, were derived the circular form of temple and the circular arch, which became leading features in the development of the future Roman style.

The *Orders* imported from Greece were the Doric, Ionic, and Corinthian (q.v.). These were all used in Rome, but with some modifications; the Doric, e.g., being never used as in Greece, but without fluting, and with the capital and entablature altered, and a base added, so as to make the style more similar to the others, with which it was often associated. The Ionic had the volutes turned out angularwise, so as to present a similar face in each direction. The favorite 'order' of the Romans, however, was the Corinthian. It was invented in Greece, but more fully developed in Rome, where it suited the desire for richness and luxuriance in architecture. Many fine examples of

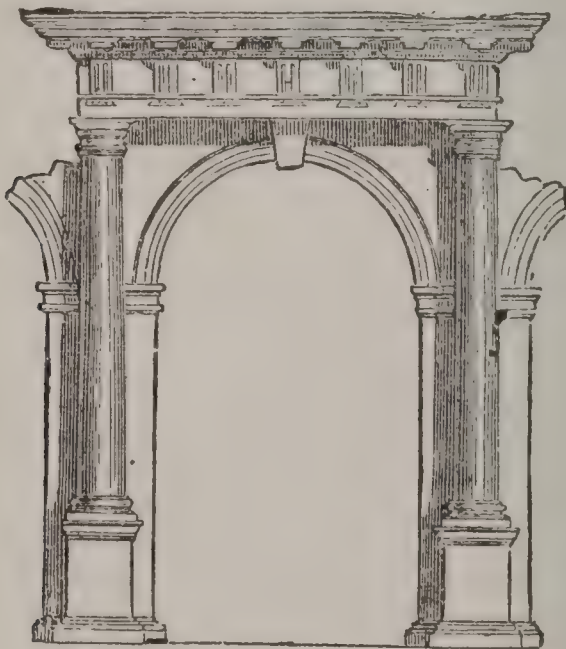


Fig. 1.—Doric Arcade.

this style exist in Rome (as the Pantheon, Jupiter Stator, etc.), and in the provinces (as the Maison Carrée at Nîmes, Baalbek, etc.), the capitals, wherever found, being designed in endless variety. The Composite order was an invention of the Romans, and is sometimes called *the Roman order*: it is a combination of the Ionic and Corinthian. All these orders were used by the Romans, but in a mag-

ner peculiar to themselves; they combined with the Greek orders the arch. They placed the columns (fig. 1) at wide intervals, and set them on pedestals, to give them and the entablature a proper proportion; while behind the columns they placed square piers, and from them threw arches which supported the wall. This was the favorite Roman style, and may be seen in all their important works (amphitheatres, arches, baths, etc.). They piled one order above another, marking each story with the entablature. As the style proceeded, vaulting and arching became more common, especially in internal construction, but the horizontal ornamentation was never entirely abandoned. Arches of this construction were thrown from pillar to pillar behind the entablature, and gradually the pier was omitted, and the arch openly thrown from pillar to pillar, the architrave bent round it, and the cornice continued horizontally above.

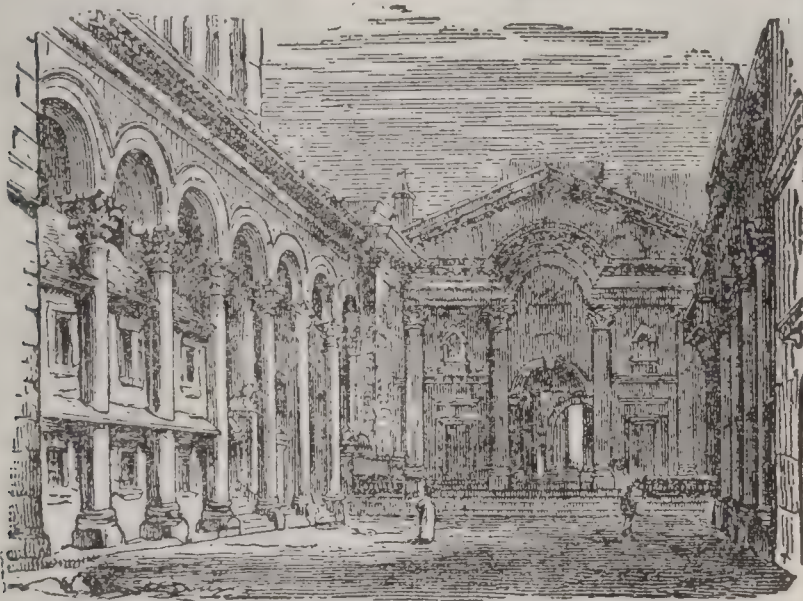


Fig. 2.—Court-yard at Spalatro.
(From Sir Gardner Wilkinson's *Dalmatia*.)

The buildings executed by the Romans are very varied in their character, but the same style was used for temples, baths, amphitheatres, triumphal arches, tombs, etc. The earliest temples of which remains now exist are those of Jupiter Stator in the Forum, Jupiter Tonans, and Mars Ultor, all of the Augustan epoch, and each with only three columns left. These are supposed to have been nearly peripteral, and it is worthy of notice that all the cells are large, and one of them has an apse.

One of the most interesting temples of Rome is the Pantheon. The portico is of the age of Augustus, but the rotunda is probably considerably later. The dome of the interior is a splendid example of the progress of R. A. in developing the use of the arch, and transferring the decoration from the exterior to the interior. The former is in this case totally sacrificed to the latter; but the interior has not yet been surpassed for boldness of construction or simplicity and sublimity of effect. Other examples of cir-

ROMAN ARCHITECTURE.

cular temples, on a small scale, are found at Tivoli and in Rome, both dedicated to Vesta.

The greatest works of the Romans, however, were not their temples. The Basilicas (q.v.), Amphitheatres (q.v.), and Baths (q.v.) are far more numerous and more stupen-

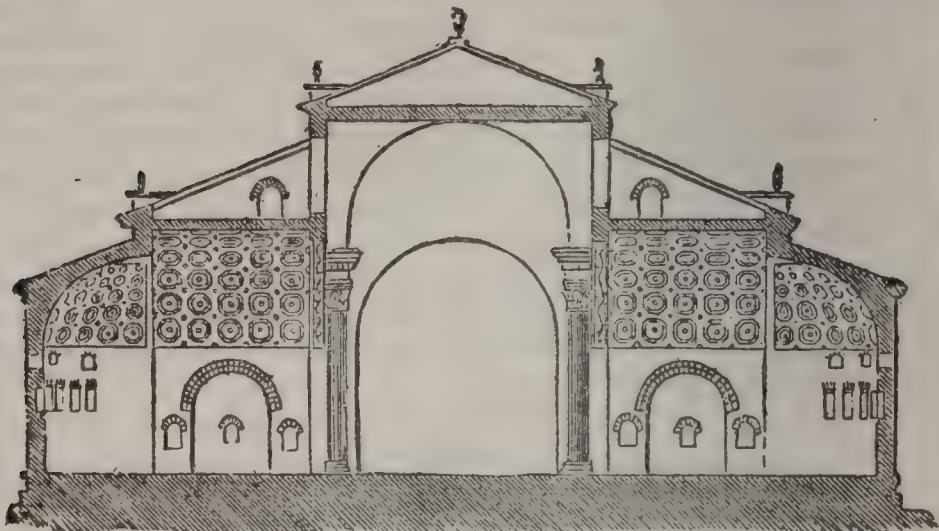


Fig. 3.—Transverse Section of Basilica of Maxentius.
(From Fergusson's *Handbook of Architecture*.)

dous as works of art, and all show how well the Romans had succeeded in producing an internal architecture, which at a later period became useful as a model for Christian buildings. The Basilica of Trajan is a type of the Christian wooden-roofed churches; while that of Maxentius (fig. 3), with its great intersecting vaults, its vaulted aisles, and



Fig. 4.—Tomb of Cæcilia Metella.
(From Fergusson's *Handbook*.)

its buttresses, contains the germs of the greatest Christian cathedrals. The Roman Amphitheatres (q.v.) have never been surpassed for size and grandeur, or for suitability to their purpose. And of the Baths (q.v.) sufficient remains

ROMAN ARCHITECTURE.

are left, though much decayed, from the perishable nature of the brick and stucco employed in their construction, to prove that the scarcely credible descriptions of contemporaries were surpassed by the magnificence of the buildings themselves.

Among other varied public works of the Romans are their Aqueducts (q.v.) and bridges, Triumphal Arches (q.v.), pillars of victory, and tombs. Of the tombs of the Romans, the earliest and best specimen is that of Cæcilia Metella (wife of Crassus), on the Appian Way (fig. 4). It consists (like most Roman tombs) of a round drum on a square basement, and was probably surmounted by a conical roof. The tomb of Augustus was similar, on a very large scale, and the sloping roof was broken into terraces planted with trees. The tomb of Adrian (now the castle of San Angelo in Rome) is another enormous example. The tombs were generally ranged along the ways leading to the gates of cities.

The later tombs of Rome are well worthy of study, as they contain many specimens of the transition toward the Chris-

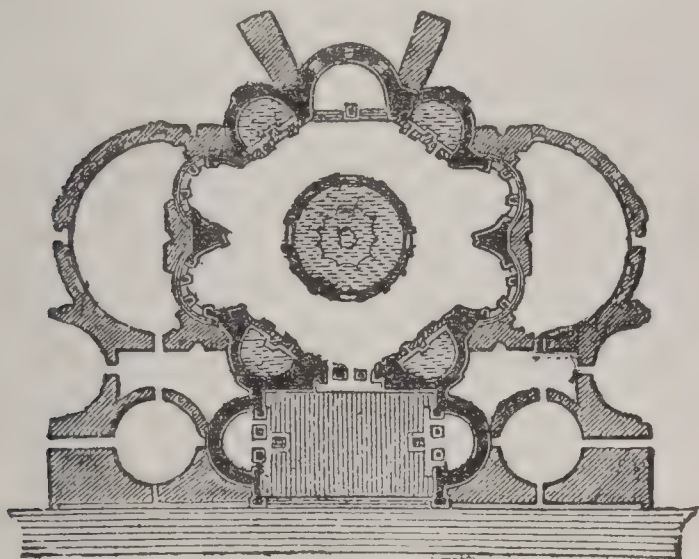


Fig. 5.—Plan of the Temple of Minerva Medica at Rome.

tian style. They are generally vaulted, frequently with domes; e.g., the tombs of St. Helena and Sta. Costanza. Fergusson places the so-called 'Temple of Minerva Medica' (fig. 5) also among the tombs. It is a beautifully arranged building with ten sides, all containing deep niches (except the side with the door), surmounted by a clerestory, with ten well proportioned windows. The vault is polygonal inside and outside; and the pendentives, ribs, buttresses, etc., which became so important in the Christian architecture both of the East and West, are distinctly used in its construction.

Of the domestic architecture of the Romans, there are many wonderfully preserved specimens in Herculaneum and Pompeii, showing both the arrangements and decorations of the dwellings of all classes. Of the great palaces and villas, however, none remain except the palace of Diocletian, at Spalatro, in Dalmatia. It is an important building, as it shows many steps in the progress of the style.

ROMAN CATHOLIC CHURCH.

ROMAN CATHOLIC CHURCH: community of Christians throughout the world who recognize the spiritual supremacy of the pope or bishop of Rome, and are united together by the profession of the same faith, and the participation of the same sacraments. The subject may be conveniently treated by considering under separate heads the history of this great Christian community; its doctrinal and disciplinary system; and finally, its organization and constitutional forms, especially as affected by the decrees of the late council of the Vatican, and by other doctrinal constitutions of recent years.

Although a few other points of doctrinal difference separate the Roman Church from the Greek, Russian, and oriental communions, yet the most palpable ground of division lies in the claim of supremacy in spiritual jurisdiction on the part of the Roman bishop. The history of the Roman Church, therefore, in relation to the ancient oriental churches, is, in fact, the history of this claim to supremacy. In the minds of Roman Catholics, the claim of supremacy on the part of the bishop of Rome rests on the belief that Christ conferred on the apostle Peter a 'primacy of jurisdiction;' that Peter fixed his see and died at Rome (a position which many Prot. historians have called in question); and thus, that the bishops of Rome, as successors of the apostle Peter, have succeeded to his prerogatives of supremacy. In this light, Rom. Cath. historians read the facts of the early history of the church—and they trace to this acknowledgment of the superiority of that see, the numerous references to Rome on matters of doctrine or discipline; the appeals from other churches, even those of Alexandria, Antioch, and Constantinople; the depositions or nominations of bishops, examination and condemnation of heresies—of which the first five centuries, especially the 4th and 5th, present examples, but in which Prot. historians recognize only the natural result of the political and social superiority of Rome as capital of the Roman empire. The letters of Pope Leo the Great show beyond question that the bishops of Rome, in the commencement of the 5th c., claimed to speak and act with supreme authority; and the first direct challenge to this claim was made by the patriarch of Constantinople, Acacius, and led to a schism of many years, which, however, terminated in the humiliation of the younger see. In all the controversies on the Incarnation—the Arian, the Nestorian, the Eutychian, the Monothelite—not only was the orthodoxy of Rome never impeached, but she even supplied at every crisis a rallying-point for the orthodox of every church. It was so, again, in the Iconoclast controversy; and though Constantinople, in the time of Gregory the Great and again of Nicholas I., renewed the struggle for supremacy, or even equality, the superior position of Rome continued to be recognized. The separation of the Greek Church and her dependencies, under the patriarch Michael Cerularius, 1054, was but a narrowing of the territorial jurisdiction of Rome; and within that portion of the church which remained faithful, it even enhanced her dignity, and widened her prerogatives. The abandon-

ROMAN CATHOLIC CHURCH.

ment of Italy by the emperors to its fate, under the invasion of the barbarians, led to the establishment of the temporal sovereignty of the popes; and the social disorganization of Europe combined with the spiritual authority of the Roman bishop to establish the general recognition of his authority throughout the kingdoms of Europe as an arbiter in the temporal relations of sovereigns with their subjects, and of sovereigns toward each other. This extraordinary temporal authority was at once the consequence and the support of his acknowledged spiritual power; and even Protestants have recognized the Rom. Church of the mediæval period as absorbing in itself almost the whole of European Christendom, and as the only public (even though they believe it degenerate and corrupt) representative of the church in the West. The temporary withdrawal of the papal residence from Rome to Avignon brought notable diminution, at least, of the temporal power of the popes, which was still further weakened by the long western schism, by the conflicts of the rival pontiffs, and the scandals which arose therefrom. The modern political institutions which then began to break forth upon the world so modified the public relations of church and state, as by degrees to undo the condition of society in which the temporal power of the popes had its foundation. The great revolution of the 16th c. completed the process.

The revolution with which the popes thus found themselves face to face was not without its influence in the external history of the Roman Church. The defections consequent on the Reformation, at first numerous and formidable, received a check. The great Council of Trent did more to systematize, to define, and to present in popular form the doctrinal belief of Rome, than had been accomplished by the united efforts of the schoolmen of the three centuries which preceded the Reformation; while the decrees of reform which it enacted, and still more the schemes of local and individual reform which it originated, and to which it gave impulse as well as example, tended to bring about an active internal reform. The latter half of the 16th c. was a period of new life in the Roman Church. The celebration of local synods, the establishment of episcopal seminaries, the organization of schools, and other provision for religious instruction—above all, the foundation of active religious orders of both sexes—had the effect of arresting the progress of Protestantism, which in many countries had been at first rapid and decisive; and Lord Macaulay has traced with curious minuteness the line which marks in the several kingdoms the origin and the progress of this religious reaction.

From the end of the 16th c., therefore, the position of the Rom. Cath. Church, especially in her external relations, may be regarded as settled. The local distribution of the rival churches in the world has hardly been altered, except by migration, since that time. But in her relations to the state, the Roman Church has since passed through a long and critical struggle: see **GALLICAN CHURCH: FEBRONIANISM; INNOCENT XI: ETC.** The new theories to which the

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French Revolution gave currency have still further modified these relations; but in most of the European kingdoms they were readjusted after 1815, either by concordat or some similar agreement. Many conflicting claims on either side, however, still exist; but in the conflict with the state, the policy of the Rom. Cath. Church has generally been to record her protest against any violation of her right, and, this protest having been made, to submit under protest, unless in what are considered the essentials of faith or of discipline. Where the encroachments of the state are considered to violate the essentials of faith or discipline, the resistance must result in definitive separation, as in the case of England under Henry VIII. and his successors, and of Poland under the czar.

The details of the doctrinal system of the Rom. Cath. Church may be best collected and explained from her latest authentic creed, commonly called 'the creed of Pius V.,' drawn up as a summary of the authoritative teaching of that ecclesiastical body till the time at which it was written, and published together with certain later doctrinal pronouncements. It is necessary only to premise that, while in the view of Rom. Catholics (see **RULE OF FAITH**) all doctrine must be based on the word of God, written or unwritten, the church is the only authoritative judge of that rule of faith. For the tribunals which are held to represent this teaching, as well as the subjects to which the privilege extends, and the limits within which it is held to be exercised infallibly, see **INFALLIBILITY**. But Rom. Catholics hold, that while the church has authority, when doubts or difficulties arise, to propound, in such terms as leave no room for doubt, new definitions of faith, nevertheless these new definitions must not be regarded as additions to the accepted faith of the church, or indeed to the original deposit of Divine teaching, but only as expositions of former articles, or at most as developments of what already existed in the germ and has but been evolved by controversy, or brought into practical action by the progress of time and by the change of the external relations of the church. The creed of Pius V. is as follows:

'I, N. N., with a firm faith believe and profess all and every one of those things which are contained in that creed which the holy Roman Church maketh use of. To wit: I believe in one God, the Father Almighty, Maker of heaven and earth, of all things visible and invisible. And in one Lord Jesus Christ, the only begotten Son of God, born of the Father before all ages; God of God; Light of Light; true God of the true God; begotten, not made; consubstantial with the Father, by whom all things were made. Who for us men, and for our salvation, came down from heaven, and was incarnate by the Holy Ghost of the Virgin Mary, and was made man. He was crucified also for us under Pontius Pilate, suffered, and was buried. And the third day he rose again according to the Scriptures: he ascended into heaven, sitteth at the right hand of the Father, and shall come again with glory to judge the living and the dead; of whose kingdom

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there shall be no end. I believe in the Holy Ghost, the Lord and life-giver, who proceedeth from the Father and the Son; who, together with the Father and the Son, is adored and glorified; who spake by the prophets. And in one holy, Catholic, and Apostolic Church. I confess one baptism for the remission of sins; and I look for the resurrection of the dead, and the life of the world to come. Amen.

‘I most steadfastly admit and embrace the apostolical and ecclesiastical traditions, and all other observances and constitutions of the same church.

‘I also admit the holy Scriptures, according to that sense which our holy mother the Church hath held and doth hold; to whom it belongeth to judge of the true sense and interpretation of the Scriptures; neither will I ever take and interpret them otherwise than according to the unanimous consent of the Fathers.

‘I also profess that there are truly and properly seven sacraments of the new law, instituted by Jesus Christ, our Lord, and necessary for the salvation of mankind, though not all for every one: to wit—Baptism, Confirmation, the Eucharist, Penance, Extreme Unction, Order, and Matrimony; and that they confer grace; and that of these, Baptism, Confirmation, and Order cannot be repeated without sacrilege. I also receive and admit the received and approved ceremonies of the Catholic Church, used in the solemn administration of the aforesaid sacraments.

‘I embrace and receive all and every one of the things which have been defined and declared in the holy Council of Trent concerning original sin and justification.

‘I profess, likewise, that in the Mass there is offered to God a true, proper, and propitiatory sacrifice for the living and the dead; and that in the most holy sacrament of the Eucharist there is truly, really, and substantially the Body and Blood, together with the soul and divinity, of our Lord Jesus Christ; and that there is made a conversion of the whole substance of the bread into the Body, and of the whole substance of the wine into the Blood; which conversion the Catholic Church calleth Transubstantiation. I also confess that under either kind alone Christ is received whole and entire, and a true sacrament.

‘I constantly hold that there is a Purgatory, and that the souls therein detained are helped by the suffrages of the faithful.

‘Likewise, that the saints reigning together with Christ are to be honored and invoked, and that they offer prayers to God for us, and that their relics are to be had in veneration.

‘I most firmly assert that the Images of Christ, of the Mother of God, ever Virgin, and also of other saints, ought to be had and retained, and that due honor and veneration are to be given them.

‘I also affirm that the power of indulgences was left by Christ in the church, and that the use of them is most wholesome to Christian people.

‘I acknowledge the holy, Catholic, Apostolic, Roman

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Church for the mother and mistress of all churches; and I promise true obedience to the Bishop of Rome, successor of St. Peter, Prince of the Apostles, and Vicar of Jesus Christ.

'I likewise undoubtedly receive and profess all other things delivered, defined, and declared, particularly by the holy Council of Trent; and I condemn, reject, and anathematize all things contrary thereto, and all heresies which the church hath condemned, rejected, and anathematized.

'I, N. N., do at this present freely profess and sincerely hold this true Catholic faith, out of which no one can be saved; and I promise most constantly to retain and confess the same entire and inviolate, by God's assistance, to the end of my life.'

In addition to these articles, the Rom. Cath. Church has, since the compilation of the creed of Pius V., defined certain further doctrines in the controversy on grace, which arose from the teaching of Jansen (q.v.); still more recently that of the Immaculate Conception of the Blessed Virgin Mary (q.v.); and a still more comprehensive body of articles in the memorable *Syllabus* issued by Pope Pius IX., and in the decrees of the Vatican Council, celebrated under the presidency of the same pontiff. The doctrinal decisions of this latter council are divided into two sections, the first 'on the Catholic Faith,' the second 'on the Church of Christ.' Each section contains a 'scheme of doctrine,' in which the heads of belief, and the grounds on which they rest, are explained; and to each is appended a body of 'canons,' in which the several points are summarized, stated in precise theological language, and defined as articles of 'Catholic belief.' In the scheme 'on the Church of Christ' are contained, in 'an additional chapter,' the celebrated declarations regarding the infallibility of the pope. See *Omnium Concilii Vaticani Documentorum Collectio* (8vo, Paderborniæ 1873).

The details of the discipline of the Rom. Cath. Church would be out of place here. But it may be observed that the Rom. Cath. Church leans toward asceticism, as regards fasting, with less rigor than the Greek and oriental communions; while, on the contrary, as to the Celibacy (q.v.) of the clergy, her law is much more stringent; all the clergy of the Rom. Cath. Church in the greater orders, including subdeacons, being so strictly bound to celibacy, that a marriage contracted after ordination is invalid by the church law: see **ORDERS**. In all that regards the general discipline of the whole church, only the pope or a general council is considered to have power to legislate; national or provincial synods for the discipline of a kingdom or province, and bishops for that of their own dioceses.

For the constitution of the Rom. Cath. Church, see **HIERARCHY**. It is to be noted that under the generic name Rom. Catholics are comprised all Christians who acknowledge the supremacy of the Roman pontiff, even though they be not of the Roman or Latin RITE (q.v.). Not a few individuals and churches of other rites are included under this designation—Greeks, Slavonians, Ruthenians, Syrians (in-

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cluding Maronites), Copts, and Armenians; and these communities are permitted to retain their own national liturgy and language, and for the most part their established discipline and usages. The most remarkable examples of the diversity of discipline thus introduced under the common rule of the Roman pontiff are the retention in the East of the use of the cup for the laity, and the permission of the marriage of the clergy.

As regards its organization for ecclesiastical government, the normal territorial distribution of the Rom. Cath. Church of the several rites in the various countries where it exists is into provinces, which are subject to archbishops, and are sub-divided into bishoprics, each governed by its own bishop. The number of archbishops and bishops of the several rites in communion with Rome 1900 was 876, of whom 12 bore the title patriarch; the number of cardinals was 64. But in certain parts of the world, where the population and govt. are Prot. or unbelieving, the spiritual affairs of the Rom. Cath. Church are directed, not by bishops with local titles, but by bishops *IN PARTIBUS INFIDELIUM* (q.v.), who are styled vicars of the pope, or vicars apostolic. The number of archbishops and bishops 1890, including those *retired* and those with sees *in partibus infidelium*, was about 1,100.

The number of Rom. Catholics in the world is variously estimated from 152,000,000 to 230,000,000. The most recent claim of the church itself, formulated from Propaganda returns by the Rev. O. Werner, s.j., author of the *Katholischer Missions-Atlas*, gave Europe 150,684,050; Asia 8,311,800; Africa 2,656,205; N. and S. America 51,422,566; and Australia and adjacent islands 443,442—total 213,370,000. Believing this total to be below the real number, Werner added to the returns and made the new total 214,370,000. In the United States there were (1902) 1 cardinal, 12 archbishops, 81 bishops, 12,429 priests, 3,402 seminarians, 10,689 churches, 81 seminaries, 7 universities, 629 academies for girls, 3,857 parochial schools, 163 colleges for boys, and an estimated Roman Catholic population 10,976,757. In order to avoid unnecessary repetition, we refer to separate articles on the various countries in Europe, America, and elsewhere for the number of Rom. Catholics in them; for the total numbers of other faiths, see RELIGION; and for the number of those subjects of the pope who follow a rite different from that of Rome, see GREEK CHURCH: RUSSIAN CHURCH: SYRIA: MARONITES.

ROMAN CATHOLIC EMANCIPATION ACTS.

ROMAN CATHOLIC EMANCIPATION ACTS (or—RELIEF ACTS): acts in Britain for removal of sundry disabilities formerly imposed on Rom. Catholics. After the Reformation, in England and in Scotland, Rom. Catholics were subjected to many penal regulations and restrictions whose origin was due to the bloody persecutions to which Protestants had been subjected under Rom. Cath. rule. A deep sense of the danger of repetition of such scenes prevailed in the public mind: see MARY I., Queen of England: CRANMER, THOMAS: LATIMER, HUGH: RIDLEY, NICHOLAS: ROGERS, JOHN (1505–55): ETC. As late as 1780, the law of England—which, however, was not always rigidly enforced—made it felony in a foreign Rom. Cath. priest, and high treason in one who was a native of the kingdom, to teach the doctrines of his church or perform Divine service according to its rites. Rom. Catholics were debarred from acquiring land by purchase. Persons educated abroad in the Rom. Cath. faith were declared incapable of succeeding to real property, and their estates were forfeited to the next Prot. heir. A son or other nearest relation, being a Prot., was empowered to take possession of the estate of his Rom. Cath. father or other kinsman during his life. A Rom. Cath. was disqualified from undertaking the guardianship even of Rom. Cath. children. Rom. Catholics were excluded from the legal profession, and it was presumed that a Prot. lawyer who married a Rom. Cath. had adopted the faith of his wife. It was a capital offense for a Rom. Cath. priest to celebrate a marriage between a Prot. and a Rom. Catholic. The law was similar in Ireland, where the large majority of the population adhered to the old faith. In Scotland, also, Rom. Catholics were prohibited from purchasing or taking by succession landed property. The inexpediency and irrationality of imposing fetters of this description on persons not suspected of disloyalty, and from whom danger was no longer apprehended, began about 1778 to occupy the attention of liberal-minded statesmen; and 1780 Sir George Saville introduced a bill for the repeal of some of the most severe disqualifications in the case of such Rom. Catholics as would submit to a proposed test. This test included an oath of allegiance to the sovereign, and abjuration of the Pretender; a declaration of disbelief in the several doctrines, that it is lawful to put individuals to death on pretense of their being heretics; that no faith is to be kept with heretics; that princes excommunicated may be deposed or put to death; and that the pope is entitled to any temporal jurisdiction within the realm. The bill, from the operation of which Scotland was exempted, eventually passed into law. An attempt at the same time to obtain like relief for the Rom. Catholics of Scotland was defeated by an outburst of religious fanaticism. The populace of Edinburgh, stirred up by a body called ‘The Committee for the Protestant Interest,’ attacked and set fire to the Rom. Cath. churches and the houses of the clergy and of persons suspected to be favorable to Rom. Cath. relief. The frenzy spread to England, where a ‘Protestant Association’ had been formed to oppose the resolutions of the legislature

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see GORDON, Lord GEORGE. In 1791 a bill was passed affording further relief to such Rom. Catholics as would sign a protest against the temporal power of the pope and his authority to release from civil obligations; and in the following year the most highly penal of the restrictions bearing on the Scottish Rom. Catholics were removed without opposition; a form of oath and declaration being prescribed, on taking which they could freely purchase or inherit landed property.

Endeavors were made at the same time by the Irish parliament for riddance of the more important disqualifications, and for placing Ireland on equality in religious freedom with England. In 1780 Grattan carried his resolution that the king and parliament of Ireland only could make laws that would bind the Irish; and separation from England was urged as the alternative with repeal of the disqualifying statutes. The agitation culminated in the Irish rebellion of 1798; the union of 1800 followed, carried partly by means of pledges, not redeemed, regarding the removal of the disabilities in question. Meantime, in England, Rom. Catholics continued subject to many minor disabilities, which the above-mentioned acts had not removed. They were excluded from sitting and voting in parliament, and from numerous offices, franchises, and civil rights, by the requirement of signing the declaration against transubstantiation, and the invocation of saints, and the sacrifice of the mass. In the early part of the 19th c., many measures were proposed for removal of these disqualifications, and in 1813 and succeeding years one bill after another for this end was thrown out. Meanwhile, the agitation on the subject among the Rom. Catholics themselves greatly increased, assuming organized shape 1824 by the formation of the 'Roman Catholic Association' in Ireland, with its systematic collections for the 'Catholic rent.' The Duke of Wellington, who long felt great repugnance to admit the Rom. Cath. claims, was at last brought to the conviction that the security of the empire would be imperilled by further resisting them; and 1829 a measure was introduced by the duke's ministry for Rom. Cath. emancipation. An act having been first passed for the suppression of the Roman Catholic Association—which had already voted its own dissolution—the celebrated Roman Catholic Relief Bill was introduced by Peel in the house of commons Mar. 5, passed both houses, and received the royal assent Apr. 13. By this act (10 Geo. IV. c. 7), an oath is substituted for the oaths of allegiance, supremacy, and abjuration, on taking which Rom. Catholics may sit or vote in either house of parliament, and be admitted to most other offices from which they were excluded. They, however, continue to be excluded from the offices of guardian and justice or regent of the United Kingdom, lord chancellor, lord keeper, or lord commissioner of the great seal of Great Britain or Ireland, and lord high commissioner to the gen. assembly of the Church of Scotland (the disability in the case of the lord chancellor of Ireland was removed 1867). As members of corporations, they cannot vote in disposal of church property or patronage. Ecclesiastics or other members of the Rom. Cath. persua-

sion, either wearing the habit of their order or officiating in any place not their usual place of worship, or a private house, forfeit £50. The statute is that Jesuits, and members of orders bound by monastic or religious vows, must register themselves with the clerk of the peace of their county, under a penalty of £50 for every month that they remain in the kingdom unregistered. Jesuits not natural-born subjects, who have come into the country since the passing of the act, are liable to be banished. Persons admitting others to such societies within the United Kingdom are liable to fine and imprisonment, and those who have been so admitted are liable to be banished. These provisions against Jesuits, however, exist *in posse*, and are not known to have ever been enforced.

Restrictions on Rom. Cath. bequests were removed by 2 and 3 Will. IV. c. 115, as regards Great Britain, and by 7 and 8 Vict. c. 60, with relation to Ireland. Acts 7 and 8 Vict. c. 102, and 9 and 10 Vict. c. 59, abolished a few minor Rom. Cath. disabilities. British legislation tends in this direction.—For the statutory prohibition against assumption of ecclesiastical titles in respect of places in the United Kingdom, see ECCLESIASTICAL TITLES ASSUMPTION ACT.

ROMANCE, *n.* *rō-māns'* [Eng. *Roman*, the Latin or common language of Rome, or any language which grew out of it, as the Spanish, Italian, Provençal—from *L. Romānus*, a Roman: *F. Roman* or *Romance*, romance, old French: *Sp. Romance*; *It. Romanzo*, the common vulgar language: *Prov. romansar*; *F. romancier*, to write in the vulgar tongue]: name applied to those languages of Europe (French, Italian, Spanish, and Portuguese) which grew out of the literary Latin of Rome and the ordinary spoken dialects of ancient Italy: but a preferable name for these languages is *Romanic* (see ROMANIC LANGUAGES): in *Sp.*, the term came to signify a ballad; in *Eng.*, applied first to translations from the French, and subsequently a story of fiction, a meaning which the word had acquired in French (see NOVELS AND ROMANCES): any incredible tale of wild adventure in love or war resembling those of the middle ages: *ADJ.* sprung from the literary Latin and the dialects of anc. Italy: *V.* to lie; to deal in extravagant stories. ROMANCING, *imp.* *rō-mān'sing*: *ADJ.* indulging in romance. ROMANCED', *pp.* *-mānst'*. ROMAN'CER, *n.* *-sēr*, or ROMAN'CIST, *n.* *-sīst*, one who writes romances; one who invents wild and extravagant stories of love or war; a teller of falsehoods. ROMANCERO, *n.* *rō'mān-sērō* [*Sp.*]: a collection of national ballads or romances. Ro'MANESQUE', *n.* *-ēsk'* [*F.*]: style of architecture and ornament adopted in the later Roman empire: the common dialects (called usually Provençal—see ROMANIC LANGUAGES) of some of the southern districts of France, founded on the literary Latin and the dialects of anc. Italy; in *paint.*, that which is made up of fable and romance. ROMANSH', *n.* *-mānsh'*, the Romanic language of the Grisons of Switzerland—also spelled *Romansch*, *Roumansch*, *Rumonsch*. ROMANY, or ROMMANY, *n.* *rōm'ā-nī*, a gypsy; the language of the gypsies: see GYPSY.—*SYN.* of 'romance, *n.*: fable; fiction; tale; novel; story.

ROMANESQUE ARCHITECTURE.

ROMANESQUE ARCHITECTURE, *rō-man-ěsk'*: de-
based style which succeeded Roman architecture, from
about the time of Constantine (350) to that of Charlemagne
(800). It is impossible to fix the date of the style definitely,
because Roman Architecture (q.v.) was itself a transitional
style, and the one fades gradually into the other. When
Constantine proclaimed Christianity the religion of the em-
pire, he gave the Christians freedom of action. They could
worship in public, and consequently desired buildings for
their service; hence the new impetus to architecture. As
explained under **APSE** and **BASILICA**, the Christians adopted
the Roman hall of justice as the model for their church
or place of assembly, and erected many noble basilicas in
Rome, Ravenna, and over all the empire. These consisted
of three or five aisled halls—the aisles separated by rows of
columns. In Rome, the columns, entablatures, and other
ornaments were frequently taken from the ruins of ancient
buildings which abounded there. The new style is there-
fore closely allied to the ancient one in the imperial city;
but in Ravenna, Jerusalem, Provence, and remoter districts,
where few ancient remains exist, a simpler and ruder copy
of the ancient work is found. There is always, however, a
certain resemblance to the old forms which distinguishes the
Romanesque from the round-arched Gothic which succeeded
it. The piers along the aisles are always single columns,
generally with caps intended to be Corinthian, and wide
arches; the aisles are wide, with open wooden roof; and
there are remnants of entablatures, moldings, etc., which
recall the ancient Roman work. The early Christians de-
rived their round churches also from the Romans. They
were probably originally tombs, copied from such buildings



Romanesque Interior.

as the **Minerva Medica** (see **ROMAN ARCHITECTURE**), and
were the most sacred places, where the burial-service was
said, and the sacraments were administered. Hence they
afterward became Baptisteries (q.v.), and were finally ab-
sorbed into the church (see **RHENISH ARCHITECTURE**), which

then contained within itself everything connected with the Christian service.

In Rome there are still about 30 basilicas, and the Romanesque style may be said never to have died out there. As we recede from the centre, we find its influence gradually weakening, and succumbing to the northern Gothic. Thus, in Lombardy and Provence, it was superseded by the Lombard (q.v.) and Romance styles in the 11th and 12th c.; while in Byzantium and the East, it gave way to the Byzantine style about the time of Justinian. Among its finest examples remaining are St. Paul's (see BASILICA) and Sta. Maria Maggiore at Rome; and at Ravenna, St. Apollinare; the interior decoration of which last (see fig.) is very beautiful. The mosaics of the apse, the painted walls, and the inlaid pavements of the Romanesque churches, are among their finest features. In color, they always excel.

In Tuscany there is a late form of Romanesque, of which the cathedrals at Pisa and Lucca, San Miniato at Florence, and many churches in those cities, are examples. They are intermediate specimens, built during the 11th c., when the cities became prosperous, and they have a certain amount of Gothic feeling; but though beautiful in colored decoration, they have not the simple grandeur of the early basilicas; and though more decorated externally than these, they have not the bold and purpose-like appearance of Gothic elevations.

ROMANIC LANGUAGES; often called ROMANCE LANGUAGES: general name for those modern languages that are immediate descendants of the language of ancient Rome. In those parts of the empire in which the Roman dominion and civil institutions had been most completely established, the native languages were speedily and completely supplanted by that of the conquerors—the Latin. This was the case in Italy itself, in the Spanish peninsula, in Gaul or France, including parts of Switzerland, and in Dacia (see MOLDAVIA, under ROUMANIA). When the Roman empire was broken up by irruptions of the northern nations (5th and 6th c.), the intruding tribes stood to the Romanized inhabitants in the relation of a ruling caste to a subject population. The dominant Germans continued for centuries to use their native tongue among themselves; but from the first they seem to have acknowledged the supremacy of the Latin for civil and ecclesiastical purposes, and at last the language of the rulers was merged in that of their subjects, and the various Romanic languages (e.g., French, Italian, Spanish, and Portuguese) arose; not, however, without leaving decided traces of the struggle—traces visible chiefly in intrusion of numerous German words, and in mutilation of the grammatical forms or inflections of the ancient Latin, and substitution therefor of prepositions and auxiliary verbs. It is also to be noted that the language which underwent this change was not the classical Latin of literature, but a popular Roman language (*Lingua Romana rustica*)—the common language of the people of the Roman empire in s. Europe both for a time before Christ and during the first centuries after Christ—

ROMANIC LANGUAGES.

which had been used by the side of the classical, and different from it—not to the extent of being radically and grammatically another tongue, as some writers unwarrantably conclude—but chiefly by slovenly pronunciation, the neglect or misuse of grammatical forms, and the use of ‘low’ and unusual words and idioms. As distinguished from the old *Lingua Latina*, the language of the church, the school, and the law, this newly formed language of ordinary intercourse, in its various dialects, was known as the *Lingua Romana*; and from this name, probably through the adverb Romanic, came the term Romance (Prov. and O. Fr. *romans*, Sp. *romance*, It. *romanzo*), applied both to the language and to the popular poetry written in it, especially to the dialect and productions of the troubadours in s. France.

According to the theory of Raynouard (q.v.), the new language that sprang out of the corruption of the Latin was at first essentially the same over all the countries in which Latin had been spoken, and is preserved to us in a pure state in the Provençal, or language of the troubadours; and it was from this as a common ground, and not from the original Latin, that the several Neo-Latin tongues diverged into the different forms which they now present. This theory is not accepted by more recent inquirers; its groundlessness has been demonstrated by Sir G. Cornewall Lewis in his elaborate *Essay on the Origin and Formation of the Romance Languages* (2d ed. Lond. 1862). It is beyond doubt that the several daughters of the mother Latin had their characteristic differences from the very first, as indeed was inevitable. The original Latin spoken in the several provinces of the Roman empire must have had very different degrees of purity, and the corruptions in one region must have differed from those in another according to the nature of the superseded tongues. To these differences in the fundamental Latin must be added those of the super-added German element, consisting chiefly in the variety of dialects spoken by the invading nations and the different proportions of the conquering population to the conquered. French, e.g., as was to be expected, is richer in German words than any other member of the family, having 450 not found in the others. Italian is next to French in this respect. There are about 900 German words in the Romanic languages altogether, of which about 300 are common to them all. A great many of these words are terms relating to warfare.

The term *Romanic* languages seems preferable to *Romance* languages, employed by many English writers, both as Romanic is more in analogy with *Italic*, *Arabic*, etc., and as it avoids the association with a particular kind of literature, and the special Neo-Latin tongue in which that literature was originally written—viz., the Provençal. The varieties of speech originating in the way now described (which received the general name Romanic languages in recent times, first from German scholars—*Romanische Sprachen*) are divided by Diez into six jurisdictions:

1. The Italian, preserving, as was to be expected, the

ROMANISM, ROMANIST, ROMANIZE.

traits of the mother Latin in more recognizable form than any of the sister tongues. It presents a variety of strongly marked dialects.

2. The Walachian (see ROUMANIA).

3. The Spanish, characterized by copiousness and etymological obscurity, arising from the establishment of so many different nations on the soil. For one element of difference, it contains a large number of Arabic words—as many as 500 terms have been enumerated. Of its various dialects, the Castilian is considered the standard.

4. The Portuguese, including the language both of Portugal and of Galicia: it is nearly akin to the Spanish, but differs too much in some points of grammar to be reckoned a mere dialect.

5. Provençal, the language of s. France, extending on the one side into Spain over Catalonia, Valencia, and the Balearic Isles; and on the other over Savoy and part of Switzerland, about the Lake of Geneva. The line of division between the Provençal and the northern idiom, which has now become the literary language of the whole of France, is drawn usually through Dauphiné, Lyonnais, Auvergne, Limousin, Périgord, and Saintonge. From the use of the affirmative *oc* (= yes), the Provençal (according to scholars generally) was known as the *Langue d'oc*; as the northern French was called the *Langue d'oïl*, from *oïl*, modern French *oui* (see *LANGUEDOC*).^{*} The Provençal was at an early period a cultivated language, with a regular system of grammar, and in the 12th and 13th c. produced a rich poetical literature (see *TROUBADOUR*).

6. French, extending over the n. half of France, and parts of Belgium and Switzerland. Diez conceives that at first northern French may have been little different from Provençal; but, beginning with the 9th c., it has been more and more distinguished by the greater wearing away of the original grammatical forms. See *FRENCH LANGUAGE AND LITERATURE*.

The language of the canton of the Grisons (q.v.), anciently *Rhetia*, though sufficiently distinct from Italian and French, is not considered by Diez to have attained sufficient fixity or independence to be ranked with the others as a seventh Romanic tongue. It is called by the Germans *Curwälsch*, by the people themselves *Rumonsch*. There are two chief dialects: the Oberland, about the sources of the Rhine; and that spoken in the Engadine (q.v.), called the Ladin.

The chief authorities on this subject are the two great works of Diez (q.v.), the *Grammar* and the *Dictionary* of the Romanic Languages. The *Dictionary* and the *Introduction* to the *Grammar* have been translated into English.

ROMANISM, ROMANIST, ROMANIZE: see *ROMAN: ROMAN CATHOLIC CHURCH*.

^{*} Instead of the etymologies of *oc* and *oïl* given in the article referred to, Diez derives *oc* from Lat. *hoc*, this (equivalent to Eng. *so*, It. and Fr. *si*, which are only other forms of the Pronoun [q.v.] *sa* or *ta*); in the north, *oc* was first shortened into *o*, and then compounded with *il* (Lat. *hoc illud*).

ROMANOFF.

ROMANOFF, *ro-mă'nof*, THE HOUSE OF: famous line, of which the present imperial family of Russia is the chief representative. It is said to have derived its origin from a Lithuanian prince of the 4th c.; but however this may be, it is certain that the family did not make its appearance in Russia till the 14th c., when *Andrew Kobyla* emigrated from Prussia to Moscow 1341, and entered the service of the then grand-duke, Simeon the Fierce.—Andrew's descendants became bojars early in the 15th c., their territories lying in the govt. of Vladimir, and dist. of Jurief-Polskoi.—The bojar *Roman Jurievich*, fifth in direct descent from Andrew, died 1543, leaving a son and daughter; the latter of whom became czarina by her marriage with Ivan the Terrible; while the former, *Nikita Romanovich Jurief*, by his nuptials with the Princess of Susdal (direct descendant from a brother of St. Alexander Nevskoi), was allied also to the royal race of Rurik.—Nikita was one of the regency during the minority of Feodor I.; and his eldest son, Feodor, under the name *Philarete*, was elevated to the rank of archimandrite and metropolitan of Rostof during the reign of the false Dmitri. The Romanoffs supported that party who tendered the Russian crown to the Polish prince, and Philarete had gone with that view to Poland, when a sudden outburst of national sentiment put a stop to these negotiations, and the unlucky envoy was in consequence thrown into prison by the enraged Poles. The national party then proceeded to the election of a native sovereign, who should be as closely allied as possible by blood to the race of Rurik; and after much hesitation and many rejections, they chose **MIKAIL FEODOROVICH ROMANOFF**, son of the imprisoned metropolitan, and the representative, through his grandmother, of the royal House of Rurik, 1613, Feb. 21. This selection by the higher nobility and the clergy was rapturously applauded by the people; and though the new czar was not quite 17 years of age, the general desire of all classes to conform to his ordinances rendered the cares of government comparatively light.—He was succeeded by his eldest son, *Alexei Mikailovich* (reigned 1648–76), an able prince, who carried on war with varied success against the Swedes and Poles, and acquired great reputation as a legislator. Alexei was twice married, and left by his first wife two sons, Feodor and Ivan, and many daughters, and by his second wife one son, Peter.—His eldest son, *Feodor* (reigned 1676–82), was a prince of much talent and foresight, and labored with success to reduce the power of the aristocracy; but died at the age of 25 without posterity, leaving the throne by his will to his half-brother, Peter, as his full brother, Ivar, was an imbecile.—Seven years after this, *Peter* (see **PETER I., THE GREAT**) succeeded in obtaining possession of the throne. It is worthy of remark, that hitherto all the czars of the House of R. had mounted the throne before attaining 20 years of age. Peter (see **PETER I., THE GREAT**) was twice married; by his first marriage, he had a son, Alexei (q.v.), who died during his father's lifetime, leaving one son, Peter, afterward Peter II.; and by his second marriage,

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with *Catharine I.* (q.v.) (reigned 1725-27), he had two daughters, Anna and Elizabeth. Catharine I. left the throne to her step-grandson, *Peter II.* (reigned 1727-30), the last of the male line of R.; and on his death without heirs, the succession reverted to the female line.—Ivan, Peter the Great's half-brother, also had left daughters, and their claims to the crown being preferable, one of them, *Anna Ivanovna* (reigned 1730-40), was placed on the throne, and was succeeded by her grand-nephew, *Ivan IV.* (reigned 1740-1); but then a revolution drove Ivan's family from the throne, of which the cadet female line in the person of *Elizabeth* (reigned 1741-61), daughter of Peter the Great and Catharine, obtained possession.—Failing heirs of Elizabeth, her nephew, Peter, son of her elder sister, Anna Petrovna, who had married the Duke of Holstein-Gottorp (cadet of the family of Oldenburg), and died 1728, was the heir-presumptive; and accordingly, on her death 1761, he mounted the throne as *Peter III.* (reigned 1761-2), founding a new dynasty, that of ROMANOFF-OLDENBURG; but his brief tenure of power was ended by his assassination, at the instigation of his wife, Princess Sophia-Augusta of Anhalt-Zerbst, who, as Catharine II. (reigned 1762-96), wielded the sceptre of this mighty empire for 34 years. She was succeeded by *Paul I.* (q.v.) (reigned 1796-1801), her only son by Peter III.; and Paul, also, after a brief reign, was assassinated, leaving several sons, the eldest of whom was *Alexander I.* (reigned 1801-25); but as he left no issue, the crown at his death devolved by right on his next brother, Constantine. Constantine had, however, in compliance with the wish of his elder brother, previously relinquished his claims to the supreme power, and the third brother, *Nicholas I.* (reigned 1825-55), ascended the throne. Nicholas left at his death four sons and several daughters, and, 1891, his grandson, *Alexander III.* (began reign 1881), is the present czar.

ROMAN RELIGION.

ROMAN RELIGION, ANCIENT: conglomeration of the most widely different theological or rather mythological elements, introduced by the various strata of immigrations that flowed into different parts of Italy at different pre-historic times. It was chiefly under Greek influence that it assumed that most characteristic and systematic form under which it was known during the classical times of Rome, and as which it generally presents itself to our minds. Numa Pompilius (q.v.), mythic successor of Romulus, is by the primitive legend mentioned as founder of the Roman religion, or rather of its ceremonial law. He is probably the type of the period when first the religious notions of the Sabines were joined to the primitive elements of legendary belief of the early settlers. Among the vast number of the different and obscure component elements, the Pelasgian, Sabellian, Oscan, Gallic, etc., out of which grew the recognized state religion, we can, with comparative clearness, distinguish chiefly three—the Etruscan, the Sabine, and the Latin. For the religion of the Etruscans—as distinct from the Pelasgians (q.v.)—see ETRURIA. Of the gods of the Latins, many are closely related to those of the Greeks (see GREEK RELIGION), a fact easily accounted for by their common eastern origin (see ROME—‘general term for the territory,’ etc.—*History*): others, however, seem indigenous. Their principal deities are Tellus (q.v.) (the earth); Saturn (q.v.) (god of seeds), and his wife, Ops (goddess of earth and plenty), who are somewhat akin to Kronos and Rhea; Jupiter (q.v.), with Juno (q.v.), givers of light. Deities more peculiar to the Latins are Janus (q.v.) and Diana (q.v.). Faunus and Fauna are prophesying wood-deities, and were allied to Lupercus, in whose honor the Lupercalia (q.v.) were celebrated; Picus and Pilumnus, who preside in some way over agriculture and the fruits of the field; Vesta (q.v.); Fortuna (q.v.); Ferentina, goddess of leagues. A number of agrarian deities (Anna Perenna, Venus, etc.) form, with those mentioned, the bulk of ‘native’ Latin numina. Of chiefly Sabine deities were Feronia (the Ferentina of the Latins), a goddess of the soil, worshipped with gifts of flowers and fruits; and the two war-gods, Mars and Quirinus—the former a deity worshipped at first under the symbol of shield and spear, and of high importance for colonizations, to whom every animal and every human being born in a certain year was sacred; the animal being doomed to be sacrificed, and the person at the age of 20 to emigrate and to found new settlements: Quirinus, a deity of strife, closely connected with the myth of Romulus. Sabine deities were also Sol, the sun, Luna, the moon, etc.

Having thus traced some of the principal gods and goddesses (for many of whom see the proper titles) to the respective nationality that first introduced them into Italy, we turn to a brief glance at the Roman Pantheon as it appeared when it had embodied systematically these acclimatized primeval idealizations: for it was as characteristic of the Roman gods to appear in sets, as it was for the more personal gods of the Hellenes to appear singly. The

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Romans made them fall rationally into rank and file, each with a distinct mission of its own; and thus filled with them, as with authorities over special departments, the whole visible and invisible world—above, below, and around. The first rank of all is taken by the three Capitoline deities, personifications of highest power, highest womanliness, and highest wisdom—Jupiter (q.v.); Juno (q.v.), Queen of Heaven, and tutelary deity of women; and Minerva (q.v.). The stars also had three foremost representatives—Sol, the sun, Luna, the moon, and Tellus, the earth. The supreme deities of the infernal regions were Orcus; Dis (Dives, Consus?), and his wife, Queen of the Empire of the Shadows, Libitina. The element of the water was presided over by Neptune (q.v.); that of the fire by Vulcan (q.v.), god of the smithies, and by Vesta, goddess of the domestic hearth and its pure flame. Agriculture and rearing of cattle were sacred to the ancient Latin king Saturnus, whose wife, Ops—personifying the riches therefrom accruing—had, like Demeter, her seat in the soil. Ceres, Liber, and Libera, the three Greek deities of agricultural pursuits, were superadded about B.C. 500. Pales, special protector of flocks, and his festival (the Palilia), were celebrated on the foundation-day of Rome. Mars himself was the supreme deity of the Romans next to Jupiter. Deities of oracles are Faunus, a deified king, who gave his obscure decisions either in dreams or in strange voices, and his female relative—wife, daughter, or sister—Fauna (Bona Dea), who attends only to the female sex; and the Camenæ, prophesying nymphs, of whose number was Egeria, Numa Pompilius's inspirer. The Apollo worship was of late growth in Rome. The Parcæ represented the unchangeable fate of the individual. Fortuna was, on the contrary, the uncertain chance of destiny, the 'luck' to be invoked at all important junctures. Salus, Pax, Concordia, Libertas, Felicitas, Pietas, Virtus, Honos, Spes, and a host of other abstract notions, explain themselves. Venus became important first when identified with Aphrodite; in the same way as Amor, Cupido, and Voluptas were Greek importations brought into prominence by the poets chiefly. Life, death, and life after death were made concrete, by the Genii, the Lares, Manes, and Penates: see LARES AND PENATES (under LAR).

Like the Greeks, the early Romans had no 'mediators,' but addressed their prayers and supplications directly to the individual god. The priesthood, we find, in the classical period, had arisen originally from the 'kindlers' (*flamines*) of Mars, or those who presented burnt-offerings to the early Italian war-god Mars, and the 12 dancers (*Salii*) who in March (the month of Mars) performed war-dances in his honor. To these came the 'Field Brethren,' the 'Wolf-repellers,' etc.; and thus by degrees an endless and most powerful hierarchy came to be built up. By the side of it, but not identical with it, were certain sacred colleges, which kept the sacred traditions alive, and were the supreme authority on religious observances. These were the colleges of Pontifices (q.v.) or Bridge-builders, of

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Augurs (see AUGURIES and AUSPICES); the keepers of the Sibylline Books (see SIBYL); the 20 Fetiales or state heralds, the supreme—advising, not executing—authorities on international law; the Vestal virgins, on whom devolved the guardianship of the Palladium and of the sacred fire; the Salii (see above); and others. Priests in the stricter sense of the word, in the service of special deities, were the Flamens (q.v.); while the Dea Dia, goddess of fields (Tellus, Ceres, Ops, Flora), had the special brotherhood of the 12 Arvalian brothers, with their numerous followers. The state sacrifice, which before the expulsion of the mythical kings was supposed to have been offered up by these, was offered by a special *Rex Sacrorum* or *Rex Sacrificulus*.

The mode of worship was analogous to that of the Greeks. Votive offerings, prayers, vows, sacrifices, libations, purifications, banquets, lays, songs, dances, and games made up the sum of their divine service. The sacred places were either *fana*, *delubra*—mere hallowed spots on hills and in groves—or *templa*, *ades*—special buildings dedicated to a special deity. The latter contained two altars—the *ara*, for libations and oblations; and the *altare*, for burnt-offerings chiefly. Frugality, as it pervaded in the classical period the domestic life, so it also prevented all extravagance of offerings to the deity, and all excess of rejoicing before it. Sober and dull as the Roman religion undoubtedly was—for it never once expanded into the joyful extravagances of fancy with which the Greek religion was fraught throughout—it kept free from the inhuman pollutions and abominations that are the natural offspring of such unbounded sway of fancy. Human sacrifices, as far as they are found, grew out of the idea of substitution, and were chiefly enthusiastic voluntary acts of men who threw themselves into the breach; or they carried out decrees of civil tribunals which had convicted the ‘victim’ of a deadly offense. In their dealings with the gods, the Romans were pure merchants, carrying out their promises with strict literalness, and thus often fraudulently, against the patent inner meaning of their promises; but the gods were not to them the all-pervading essences, but rather creditors, strict and powerful, yet unable to exact more than was agreed upon outwardly.

A code of moral and ethical rules, furthering and preserving civil order, and the pious relations within the state and family, were the palpable results of this religion, which, in its barrenness of metaphysical notions, did next to nothing for the furtherance of art.

And here we must enter somewhat more fully into that peculiar phenomenon of the utter dissimilarity in the characters of the Greek and Roman religion, which has before been intimated—a dissimilarity all the more surprising as the self-same symbolical and allegorical views of nature, filtered through however different channels, form the foundation of both. Both also—especially in their later stages—offer a general analogy not only of deities and spirits, but even of holy places and their mode of wor

ship. But the fact is that they each took the originally common stock of notions and conceptions, clad more or less in mythical garb, and utterly transformed it, superadding to it from time to time according to their own distinct nationality. It is here, however, that their characteristic traits come out in as forcible a contrast as they do in every other relation of life, in their art and culture, in their states and families. While to the Hellenes the individual was the chief end of all things, and the state existed for the citizen, and the ideal was the *Kalokagathia*, the beautiful good, the Romans imposed, as the highest duty, submission to authority—the child to the father, the citizen to the ruler, and all to the gods. To them, only that which was useful appeared good. Idleness was not to be tolerated in a community where every single member existed only as far as contributing to the greatness and aggrandizement of the commonwealth. Hence, with them, a rational thoughtfulness, and a grand and awful austerity in their relations with men and gods; while the Greeks treated both with joyous serenity. The Greek invested his gods with human attributes, and then surrounded them with a halo of highest splendor and glorious divine beauty; but he constantly modelled and remodelled them, until they reached the acme of beautiful perfection, as would the painter and the sculptor with their work. The Roman, on the other hand, cared nothing for the outward form of his idealized notions—the notions themselves, mere fundamental ideas, were his sole object of veneration. The Greeks made everything concrete, corporeal, and individual; the Romans, abstract and general. The Greeks could worship only allegories; the Romans, abstractions. Hence, also, the utter discarding by the Romans of many of the myths common to the whole Indo-Germanic stock, the unmarried and childless state of their gods, who, moreover, wanted no food, and did not wander about among men, as did the Indian and the Hellenic. As in the late Midrash, which partly has found its way into Christianity, there was a heavenly Jerusalem right over the earthly Jerusalem, in which all things below were reproduced in an exact but most ideal and divine manner. Thus, the Roman Pantheon was the counterpart of the Roman world as it existed in reality. Every man, and thing, and event, and act had a corresponding tutelary deity, that came and went with the special individual, phenomenon, or event; and eternal gods were those only that represented certain great unchanging laws of nature. The angels of the legendary lore of later Judaism and early Christianity, that protect special nations, were with the Romans the gods of these nations, and historically were admitted, as their special numina, into the divine commonwealth of the Romans simultaneously with the admission of these nations into the Roman pale of freedom.

As long as the grand old Roman simplicity of manners, the frugality of domestic life, the indefatigable pursuit of agriculture, trade, and commerce, lasted—and all of these were well characterized by the deep reverence paid to gods

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(albeit not in the highest scale of divine order), who presided over the house, the field, the forest, mercantile enterprise, and the like—Vesta, the Penates, the Silvani, the Lares or Lases, Hercules or Hercules (a native Italian deity, the god of the inclosed homestead [compare Jupiter *Herceus*], apparently distinct from the Greek Heracles), as the god of property and gain, whose altar, as god of faith (*Deus fidius*), was as frequently to be met with as those of the goddess of chance (Fors, Fortuna) and the god of traffic (Mercury)—so long did Roman religion, properly so called, retain its firm hold on the people's minds, and its influence cannot easily be overrated. But when the antique austerity, the olden spirit of grand independence, the unceasing hard work that steeled body and soul, had given way to the lazy luxurious ease of later times—then Roman religion ceased to exist in reality, and over its ruins rose a mad jumble of unbelief, Hellenism, sectarianism, and oriental creeds. The ancient *religio*, the binding faith, which had excited the admiration and astonishment of the Greeks, had waned; and in proportion with the unbelief rose the pomp, and stateliness, and luxury of public worship. To the hierarchy of augurs, oracle-keepers, and pontifices were superadded special banquet-masters for the divine banquets. The priests more and more freed themselves from taxes and other public burdens, and the custom of perpetual endowments for religious objects crept in, as their influence waxed stronger and stronger. 'Pious services' became as much an item of domestic expenditure as the cook's and nurse's wages. Penny collections for the 'mother of God' were gathered on certain fixed days by the sound of fife and drum played by priests in oriental garb, headed by a eunuch, from house to house; and the whole substance of Roman faith was transformed into an unwieldy mass of dark, grovelling mysticism and shameless profligacy, presided over by wretched gangs of uneducated and unprincipled priests. This state of things favored the gradual introduction of Judaism and Christianity into the dying days of imperial Rome (see GNOSTICS). Constantine the Great abolished the last outward trace of Roman religion by proclaiming Christianity as the state religion.—For most part of the gods and goddesses above mentioned, see the respective titles. See also GREEK RELIGION: ETRURIA: PELASGIANS: ETC. For fuller treatment of the whole subject, see Mommsen's *History of Rome* (Eng. transl. Lond. 1864).

ROMANS, *ro-măng'*: town of France, dept. of Drôme, on the right bank of the Isère, 14 m. n.e. of Valence. A bridge, founded in the 9th c., connects R. with the small town of Péage, on the left bank of the river. R. owes its origin to an important abbey, founded in the 9th c. by Saint Bernard, Abp. of Vienne, and by a nobleman named Romain, who gave his name to the town. Silk and woolen fabrics are largely manufactured, and a very active general trade is carried on. Pop. (1872) 9,893; (1886) 12,822.

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ROMANS, *rō'manz*, EPISTLE TO THE: one of the canonical books of the New Test., doctrinally the most profound and elaborate composition of the apostle Paul. That it proceeded from him has never been seriously doubted by any competent scholar. Much discussion has taken place regarding the *composition* of the church at Rome, and—connected therewith—the design or object of the epistle. Were the members of the church Jewish or Gentile Christians? The general opinion of commentators is that the church was a mixed congregation, the majority of members being probably of pure Gentile descent, and the minority Jewish Christians, who perhaps formed the original nucleus of the church. Dr. Jowett, in his *Epistles of St. Paul to the Romans, Galatians, and Thessalonians*, suggests that the phenomena of the text—e.g., the frequent appeals to the authority of the 'law' addressed to Gentiles—may be best explained on the hypothesis that the apostle is speaking to a Gentile congregation which had passed through a phase of Jewish proselytism. The great value of the Epistle to the Romans consists in its exhibition of the *rationale* of Christianity. The immediate object of the apostle was probably to prevent in the church at Rome those violent antipathies of religious sentiment between Jews and Gentiles which had shown themselves elsewhere (e.g., at Corinth) and had produced such disastrous consequences; but for a complete accomplishment of this object—as also of his always controlling desire to make known Christ and his salvation—he takes a broad *ethical* view of human nature, and finds all men—Jews and Gentiles alike—estranged from God, and in need of pardon and reconciliation. He does not underrate the advantages which his Jewish countrymen possessed—nay, he extols them; but he points out at the same time that the 'oracles' or 'law' could not make the Jews holy: they could only condemn them for being unholy. The Gentiles were declared guilty not less decisively by their own consciences—the law was plainly enough 'written in their hearts.' Hence Paul's grand argument, that if men are to stand as 'righteous' in the sight of God, it cannot be by their 'works,' but in virtue of a Divine justification graciously vouchsafed to them, and received into their hearts by an act of faith. This leads him to unfold the purpose and significance of Christ's work, to dilate on the 'freeness' of God's grace toward 'sinners,' i.e., toward all men, made manifest as it was especially in the case of those whom God had chosen in His sovereign love. He concludes by predicting the conversion of his 'kinsmen according to the flesh,' exhorting the Gentiles to humility, charity, mutual forbearance, and the practice of all the Christian virtues. The epistle is believed to have been written from Corinth during Paul's third missionary journey, A.D. 59. The commentaries on it, or on special chapters, are innumerable; and almost all the great doctrinal controversies that have agitated Christendom have sought their weapons in it.

RO'MANS, KING OF THE: title assumed by the German emperors: it never expressed actual kingship Pepin and

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Charlemagne were each styled simply *patricius Romanorum*, 'patrician of the Romans;' the successors of Charlemagne were for a long time content with that style: thus it was as *patricius* that Otho I. intervened in the affairs of the city 954; and it was as *patricius* that Otho III. sought to restore the ancient dignity of Rome. But in later times it became the custom for the German emperor to style himself King of the Romans, and the last head of the Holy Roman Empire, Joseph II., bore that title.

ROMANTIC, a. *rō-măn'tik* [from ROMANCE, which see]: pertaining to romance, or resembling it; wild; extravagant; full of wild or fantastic scenery, with which the sublime and the beautiful are more or less blended. **ROMAN'TICALLY**, ad. *-lī*. **ROMAN'TICNESS**, n. *-nēs*, the state of being romantic. **ROMAN'TICISM**, n. *-tī sīzm*, a term used to express the unnatural productions of the modern French school of novelists. **ROMAN'TICIST**, n. a follower of romanticism (see ROMANTIC SCHOOL).—**SYN.** of 'romantic': sentimental; fanciful; fictitious; wild; chimerical; extravagant.

ROMAN'TIC SCHOOL: name assumed first in Germany, about the beginning of the 19th c., by a number of young poets and critics, A. W. and Fr. Schlegel, Novalis, Ludwig Tieck, Wackenroder, etc., who wished to indicate by it that they sought the essence of art and poetry in the wonderful and fantastic—elements pre-eminent in the Romance literature of the middle ages. Their efforts were directed to the overthrow of the artificial rhetoric and unimaginative pedantry of the French school of poetry, even then influential; and to the restoration of a belief in the mystery and wonder that envelop the existence of man—a belief that had been rudely assailed and mocked by the prevailing materialism in all departments of thought. Thus, their purpose was twofold—in part æsthetic, in part religious. As poetical reformers, the Romantic School in Germany unquestionably exercised a most beneficial influence; but as religionists—though their aim was intrinsically high and noble—they more or less consciously subverted the designs of a reactionary government, and so came to be hated and distrusted by the liberal politicians and thinkers of Germany.—See Eichendorff's *Ueber die ethische und religiöse Bedeutung der neuern Romantischen Poesie* (Leip. 1847); H. Heine's *Zur Geschichte der neuern schönen Literatur in Deutschland* (Hamb. 1833); Hettner's *Die Romantische Schule* (1850); R. Haym's *Die Romantische Schule* (1870); and the Danish work of Brandes (1873).—Between 20 and 30 years later, a similar school arose in France, and had a long struggle for supremacy with the older Classic School. It was victorious, but not wise; and, except in a few instances—such as Lamartine and Victor Hugo—it has rushed into excesses of caprice both literary and moral, which have stamped it with a revolutionary rather than a reformatory character.—See Tenuet's *Prosodie de l'École Moderne* (1844); Gautier's *Histoire du Romantisme* (Par. 1874).

ROMANZOVITE, n. *rō-măn'zō-vit* [after Count Romanzoff]: a brownish-black variety of lime-garnet.

ROME.

ROME, n. *rōm* [L. *Rom'ulus*, its founder; *Romā*, Rome]: the chief city of anc. Italy, and now of the kingdom of Italy; the seat of the popedom; the Rom. Cath. religion. **ROMISH**, a. *rō'mīsh*, of or belonging to the Chh. of Rome; a term offensively applied to the adherents of the Rom. Cath. Chh. **Ro'MISHLY**, ad. -ly.

ROME, *rōm*: general term for the territory, population, institutions, and historical state of ancient Italy, as connected with the cap. city, **ROME** (q.v.). These are in part treated under special titles of provinces, peoples, etc. As the Roman state gradually conquered and incorporated with itself the other states and territories of the Italian peninsula, and as these (in general) figure separately in history only during the process of this subjugation, it is convenient to consider them here. With this article, it will be helpful to consult the map of ancient Italy.

Ethnology.—In the earliest times we find in Italy five distinct races; three of which (**IAPYGIANS**, **ETRUSCANS**, and **ITALIANS**) may, in a restricted sense, be termed 'native,' inasmuch as we do not meet them elsewhere; and two, **GREEKS** and **GAULS**, 'foreign,' inasmuch as their chief settlements were not in Italy, but in Greece and Gallia. But, ethnologically, this distinction is arbitrary. There is no reason for believing that the first three races were indigenous, and the last two immigrant: the analysis of their languages, or of such fragments of their languages as survive, leads strongly to the conclusion that all were alike immigrant, and that in this respect the only difference between them is one of *time*.—1. *The Iapygians*.—This race, monuments of which in a peculiar language (as yet undeciphered) have been found in the s.e. corner of Italy—the Messapian or Calabrian peninsula—is probably the oldest.—2. *Etruscans*.—The origin of this mysterious people is certainly one of the most interesting, as also one of the most insoluble, problems in history. For their history, character, and civilization, see **ETRURIA**.—3. *Italians*.—At what period the earliest immigrations into Italy of the so-called 'Italian' races—the Latins and Umbro-Sabellians—took place, is unknown; but it was undoubtedly long before the Etruscans had settled in Etruria. They were by far the most important of the various races that inhabited the peninsula; in fact, the entire historical significance of Italy depends on them; therefore it is fortunate that their ethnological origin and affinities are capable of certain demonstration. An investigation of their language, subdivided indeed into numerous dialects, often widely differing, but fundamentally the same, has resulted in the discovery that they belong to the great Aryan or Indo-Germanic family (see **ARYAN**), and are in particular closely allied to the Hellenes. We are therefore warranted in affirming that at some very remote period a race migrated from the original home of the 'Aryans' (the East, say some authors; the plains of n. central Europe, say others), embracing the ancestors of both Greeks and Italians. By what route they proceeded, or at what point they diverged, we can only conjecture; for

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the problem is not yet solved to the satisfaction even of the advocates of the 'Indo-Germanic' theory, whether the Hellenes reached Greece by way of Asia Minor or from the regions of the Danube; but, at any rate, Mommsen's statement that the Italians, like the Indians, immigrated into their peninsula from the north,' may perhaps be regarded as certain. There is ground for believing that the Latins were the first members of the Italian family to enter Italy, and that, having crossed the Apennines, they spread themselves south along the w. coast, driving the Iapygians before them, and finally cooping them up in the Calabrian peninsula—the heel of the boot. But this conquest belongs to prehistoric ages, and the original Latins of Campania, Lucania, Bruttium, perhaps even Sicily—i.e., the races spoken of in classic legend, as the Itali, from whom the peninsula received its name, the Margetes, Ausones, Siculi, etc.—were themselves in the course of time so thoroughly Hellenized by the influence of the rich and powerful Greek colonies planted on their coasts (see MAGNA GRÆCIA), or so overwhelmed by successive invasions of Samnite hordes, that nearly every trace of a primitive Latin nationality has disappeared, and only here and there a solitary linguistic or legendary relic survives to indicate faintly the path which conjecture should pursue. It was only in Latium proper, where no Greek colonies were founded, and where the fortune of war was in its favor, that the Latin branch of the Italian race firmly rooted itself. There, however, it did flourish, and petty as the district might seem—not more in all than 700 sq. m.—it was incomparably the most important in the peninsula, for within its limits rose those seven hills on which a city was to be built that was destined to subdue and govern the world. The other branch of the 'Italian' stock—the Umbro-Sabellian—must have entered Italy at a later period than the Latin. Its advance along the central mountain ridge—the Apennines—from n. to s., can still be traced; and its last phases—i.e., the conquest of Campania and the other southern districts of the peninsula by the Samnite highlanders—belong to historical times. The oldest members of this branch are probably the Sabines (q.v.), who seem to have fixed themselves in the mountainous region n.e. of Rome, and are regarded as the progenitors of that multitude of tribes which we find occupying the central portion of Italy—the Picentes, Peligni, Marsi, Æqui, Vestini, Marrucini, Frentani, Samnites—perhaps also the Volsci and Hernici.—4. *Gauls.*—To a period considerably later and comparatively historical belongs the settlement of the Gauls in the n. and of the Greeks in the s. of Italy. The Gauls, a branch of the Celtic race, itself now ascertained to be also a member of the great Aryan family (see CELTIC NATIONS)—therefore allied, however distantly, to the other Italian races—had, for ages before history begins, fixed themselves in the region now known as France. Finding further progress westward barred by the waves of the Atlantic, and being of a restless and excitable disposition, they turned their steps e. and s.e., broke over the Alps (according to the legend in Livy, by the Little St. Bernard) some time dur-



Roman Forum, present condition.



Roman Forum, restored.

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ing the 8d c. after the founding of Rome, and poured down into the plains of the Po. The first Gallic tribe that made its appearance on the soil of the peninsula is said to have been the Insubres, whose capital was Mediolanum (Milan); then followed the Cenomani, whose headquarters were Brixia (Brescia) and Verona, and afterward numerous kindred hordes, among the latest and most powerful of whom were the Boii (q.v.) and Senones, who forced their way across the Po. and effected a lodgment in the modern Romagna, occupying (besides an inland district) the coast of the Adriatic as far s. as Ancona. Hence, in ancient times, the whole of n. Italy was for a long period known as Gallia Cisalpina (Gaul on *this*, i.e., the Italian, side of the Alps), to distinguish it from Gaul proper, which was called Gallia Transalpina. Gallia Cisalpina was again sub-divided into two parts by the river Padus (Po); the northern being named Gallia Transpadana, and the southern (the country of the Boii and the Senones) Gallia Cispadana. Various other tribes or peoples are found in n. Italy, such as the Ligurians (along the Gulf of Genoa) and the Veneti (in modern Venetia), regarding whose origin—in the absence of all linguistic and other memorials—we are utterly in the dark.—5. *Greeks*.—The other people which we have distinguished as ‘foreign’ was the Greek. There is, however, this distinction to be observed, that the Greeks were not (like the Gauls) barbarians: they did not swoop down upon the southern shores of Italy (like the Norse pirates on the coasts of England and France) to plunder and devastate; nor did they force their way into the interior and dispossess the native inhabitants: they merely colonized the coasts, built cities, and carried on commerce. Through them it is probable the Romans acquired their earliest notions of the Greek literature, philosophy, and cultus. For further information concerning them, see MAGNA GRÆCIA, and the titles of such of their cities as have received separate treatment.

Primitive Social Condition of the Latins.—With this brief introductory sketch of the various races that inhabited Italy in historical or prehistorical times, we revert to the Latins, with whom more particularly we have at present to do. What was the extent of their civilization, or how far their social organization had proceeded when they finally settled in the ‘broad plain’ [*Lætium*, connected probably with *latus*, broad; *latus*, aside: Gr. *platus*; Eng. *flat*] that stretches w. from the Alban hills to the sea, may be conjectured, but has not been ascertained. We know, indeed, that long before they had set foot in Italy, before even they had branched off from their Hellenic brethren, they had ceased to be *mere* nomads, or wandering shepherds. The evidence of this fact lies in their language. Not only do the names of the oldest Latin nations, as the *siculi* (‘the sickle-bearers’ or ‘reapers’), and the *osci* or *opsci* (‘field-laborers’), clearly prove the antiquity of Italian husbandry, but the oldest agricultural terms are actually common to both Latins and Greeks (e.g., Lat. *ager*, Gr. *agros*; Lat. *aro*, *aratrum*, Gr. *aroō*, *arotron*; Lat. *ligo* (a hoe), Gr.

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lachaino; Lat. *hortus*, Gr. *chortos*; Lat. *mīlium*, Gr. *melinē*; Lat. *rapa*, Gr. *raphanis*; Lat. *malva*, Gr. *malachē*; Lat. *vinum*, Gr. *oīnos*). Moreover, the form of the plow was the same among both peoples, as also their mode of cutting and preparing the grain; many of the usages of social life; the oldest methods of measuring the land; and the style of their national dress—the Latin *tunica*, corresponding exactly with the Greek *chiton*, while the Latin *toga* is only a fuller *himation*. Their method of building also was the same. Such evidence (and it could easily be extended) must be regarded as conclusively showing that, before the Latino-Italians entered Italy, they had been accustomed to till the ground, to make wine, to keep gardens, to build houses, and to clothe themselves decently. As to their social organization, less can be said. It appears, however—judging from the general bearing of the most ancient traditions, as also from the features exhibited in historical times—that at a very early period, and from causes of which we are now absolutely ignorant, they had begun to develop the germs of what may be called ‘state-life.’ As among their Hellenic brethren, the original foundation of their social constitution was ‘households’ [Gr. *oikiai*, Lat. *vici* or *pagi*—from *pangere*, to ‘fix’ or ‘drive in,’ hence ‘to build’]: these households, either by ties of blood, or by nearness of locality, were aggregated into clans, and their dwellings formed clan-villages (thus *pagus*, which probably meant at first only a single ‘household,’ came, by a natural transition, to denote a collection of households—a hamlet, or a village). Such clan-villages were, however, not regarded as independent societies, but as parts of a political canton or community—the *civitas* or *populus*. Each canton or *civitas* possessed a local centre or place of assembly, where justice was administered at regular intervals, where markets and sports were held, and religious rites celebrated, and which was besides fortified to serve as an asylum or place of refuge for the inhabitants of the open hamlets and their cattle in time of war. Such a centre was termed the *capitolium*, i.e., ‘the height,’ from being originally fixed on a height or hill-top, and corresponded to the *akra* of the Greeks. Round this stronghold of the canton, which formed the nucleus or beginning of the earliest Latin towns, houses gradually sprang up, which in their turn were surrounded by the *oppidum* [‘work,’ from *opus*], or the *urbs* [‘ring-wall,’ connected with *urvus*, *curvus*, *orbis*]; hence, in later times, *oppidum* and *urbs* became, naturally enough, the recognized designations of town and city. Evidence is not wanting for this view of the genesis of the Latin towns. In the ruder and more mountainous districts of central Italy, occupied by the Marsi, Æquicoli, etc., the system of living only in open villages prevailed even till the close of the empire; and there the Roman antiquarians found, to their surprise, those solitary strongholds, with their mysterious ring-walls, which, on the soil of Latium-proper, expanded into towns, but in the recesses of the Apennines never advanced beyond their original design.

The sites of the oldest of these cantonal centres or primi-

tive towns in Latium are to be sought on the slopes of the Alban hills, where the springs are freshest, the air is most wholesome, and the position most secure. Tradition (which makes Alba Longa the oldest seat of a Latin community) is here in accordance with natural probability. The story of the foundation of *Alba Longa* by Ascanius, son of Æneas, and the introduction of a Tyrrheno-Trojan element into the primitive history of Latium, is utterly fabulous. On the same slopes lay Lanuvium, Aricia, and Tusculum, to whose great antiquity ancient tradition bears testimony in many ways; on the offshoots of the Sabine range, in the e. of Latium, stood Tibur and Præneste; in the plain between the Sabine and Alban ranges, Gabii, Labici, and Nomentum; on or near the coast, Laurentum and Lavinium; and on the isolated hills overlooking the Tiber (the boundary between Latium and Etruria), the frontier town of Rome. How many cantons were originally in Latium, it is neither possible nor important to know. Tradition mentions 30 sovereign or politically independent communities (with Alba Longa at their head), which formed the famous Latin League. The historical order of their constitution is a point regarding which equally we are ignorant, but there is reason to believe that the Roman canton, or at least its capital, the town of Rome, was among the latest political organizations of the Latins. The history and fortunes of this canton we now proceed briefly to trace.

History of R. during the Earliest or Regal Period.—According to the myth of Romulus, R. was an offshoot from Alba Longa (for an outline of the ancient legend, see ROMULUS); but the most rational view of the city's origin is that suggested by a consideration of its site. It probably sprang into existence as a frontier-defense against the Etruscans, and as an emporium for the river-traffic of the country; but whether it was founded by a common resolve of the Latin confederacy, or by the enterprise of an individual chief, is beyond the reach even of conjecture. The precise date fixed upon for the commencement of the city, by the formation of the *Pomœrium*, viz., B.C. 753, Apr. 21, is, of course, valueless: we know and can know nothing on the point. The three 'tribes,' Ramnians, Tities, and Luceres, who appear in the Romuleian legend, as the constituent parts of the primitive commonwealth, suggest the idea that R. (like Athens) arose out of a *synoikismos* or amalgamation of three separate cantons; but Mommsen rejects as 'irrational' the common opinion that these cantons represent different races, and that the Romans were a 'mongrel people,' made up of Latins, Sabines, and Etruscans, with perhaps a dash of Hellenic and imaginary 'Pelagic' blood in their veins. The existence of a Sabine element, represented by the Tities, is indeed admitted; but its introduction is thrown back to a period long anterior to the foundation of the city, when the Roman clans were still living in their open villages, and nothing of R. existed but its 'stronghold' on the Palatine. Nor is there anything to indicate that that element materially

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affected the Latin character, language, polity, or religion of the commonwealth which was subsequently formed.

The motives which probably led to the building of R. led also to its rapid development, so that the great peculiarity of the Roman, as compared with the other Latin cantons, is the prominence which its urban life assumed in the earliest period. No doubt the Roman continued to manage his farm in the cantonal territory, but the insalubrity of the Campagna, as well as the advantages of river-traffic, and the necessity for watchfulness imposed on all frontier towns in rude ages, must ever have acted as an inducement to him to take up his residence as much as possible in the city. The consequence was that the Roman became essentially a 'citizen,' while the other Latins remained essentially 'rustics.' So markedly is this the case, that the beginnings of Roman history—if the ancient legend may be so designated—are records mainly of its urban expansion and political growth. That the Palatine Hill was the oldest portion of the city is attested by a variety of circumstances. Not only does it hold that rank in the Romuleian legend, but on it were situated the oldest civil and religious institutions. The Romuleian myth of the establishment of an asylum on the Capitoline (see *CAPITOL*) for homicides and runaway slaves, with all its famous consequences—the *Rape of the Sabine Women*, the wars with the Latins of Cœnia, Antemnæ, and Crustumium, but especially with the Sabines of Cures under their king Titus Tatius, the tragic fate of Tarpeia, and the fine feminine valor of the ravished maidens, who had learned to love their captors—is historically worthless; except, perhaps, so far as it shows us how from the beginning the Roman burghers were engaged in constant feuds with their neighbors for aggrandizement of their power. The entire history of the 'regal period,' in fact, has come down to us in so mythical and legendary a form, that we cannot feel absolutely certain of the reality of a single incident. That such personages as Numa Pompilius, Tullus Hostilius, Ancus Martius, Lucius Tarquinius Priscus, Servius Tullius, and Lucius Tarquinius Superbus, ever existed, or at least if they did, that the circumstances of their lives, their institutions, their conquests, their reforms, were as the ancient narrative describes them, are things which no critical scholar can believe. The destruction of the city records by the Gauls, when they captured and burned R. B.C. 4th c., deprived the subsequent chroniclers of authentic information in regard to the past, and forced them to rely on treacherous reminiscences, on oral tradition, on ballads, and on all the multifarious fabrications of a patriotic fancy, that would naturally seek compensation for political disaster in the splendor with which it would invest its primeval history. The utmost reach, therefore, to which our knowledge can attain, is to form some general idea—mainly by inference from the institutions that we find existing in later times—of the course of social and political progress in the Roman commonwealth.

From the very beginning of the city—and probably long

before—the inhabitants were divided into two orders (exclusive of ‘slaves’)—viz., householders and their dependents, better known perhaps as ‘patricians’ [from *pater*, a father] and ‘clients’ [i.e., ‘listeners’—from *cluere*, ‘to listen’]. The former alone possessed political—i.e., burgess—rights. It was they who exclusively constituted the *populus* (‘the people’); while the clients had no political existence whatever. How this latter class originated we do not know, but ‘superiors’ and ‘inferiors’ exist everywhere, and there is really nothing wonderful in the phenomena, except the rigor of their political subjection. In a thriving community like the Roman, which seems to have always held a somewhat isolated and antagonistic position relative to the other Latin cantons, new-comers, such as refugees and the like, would be frequent; and these alien settlers, it is clear, never obtained (except under very special circumstances) the privileges of the original Roman families. That the clients formed a body essentially different from the *plebs* is not true, and seems based merely on the mythical account of what followed the destruction of Alba Longa by Tullus Hostilius. The name *plebs* [i.e., ‘the multitude,’ from the same root as *pleo*, I fill, *plenus*, full; with which is perhaps connected the other Latin word *vulgus*, Eng. *folk*] is doubtless, as its signification indicates, of later origin than *clientes*; but both are applicable to the same persons, who were called ‘listeners’ in reference to their being dependents on the different burgess-households, and the ‘multitude’ in reference to their want of political rights. The constitution of the state was simple. All the burgesses were politically on a footing of equality. From their own ranks was chosen the king or ‘leader’ (*rex*), who was therefore nothing more than an ordinary burgess—a husbandman, a trader, a warrior, set over his fellows. But it must at the same time be observed that his authority was great, for the Roman state was based on the Roman household, and something of the absoluteness of the *patria potestas* appears in the uncircumscribed nature of the regal powers. The *rex* held his office for life; he consulted the national gods; he appointed the priests and priestesses; he called out the *populus* for war, and led the army in person; his command (*imperium*) was not to be gainsaid, on which account on all official occasions he was preceded by ‘messengers’ or ‘summoners’ [*lictors*—from *licere*, ‘to summon,’ though commonly given from *ligo*, ‘to bind’], bearing the ‘fasces’ (axes and rods tied up together), the symbols of power and punishment; he had the keys of the public chest, and he was supreme judge in all civil and criminal suits. The Roman religion or *cultus* was from the first thoroughly subordinate to the authority of the state; and all that we can infer from the myth of Numa is that R. perhaps owed its colleges of augurs and pontiffs to the wisdom of some enlightened sovereign who felt himself at times embarrassed in his decisions on matters of religious and public law, and recognized how valuable might be the aid afforded him by a body of sacred experts. It is certain that origi-

nally the sole power was the regal, and that the subordinate magistracies appearing at a later time arose from a delegation of regal authority, rendered necessary by ceaseless increase of state-business. 'All the officials of the earliest period,' says Mommsen (who has expounded this view with admirable sagacity in his chapter on the 'Original Constitution of Rome'), 'the extraordinary city-warden (*præfectus urbi*, who doubtless governed in the absence of the *rex*), as well as those who were probably nominated regularly, the "trackers of foul murder" (*quæstores parri-cidii*), and the "leaders of division" (*tribuni*, from *tribus*, part) of the infantry (*militēs*) and of the cavalry (*celerēs*), were mere royal commissioners, and not magistrates in the subsequent sense of the term.' On the other hand, we may believe that the *senatus*, or Council of the Elders, from its very nature, was as old an institution as the monarchy itself. Among the very first things the 'citizen-king' would do would be to choose out of the ranks of his fellow-burgesses a number of experienced men to assist him with their counsel; but it is to be observed that this body possessed no coercive or constraining powers. They gave their advice when the *rex* chose to ask it; that was all. Yet as the tenure of their office was for life, they necessarily possessed great *moral* authority; and it was only when the king, the senate, and the community were at one in regard to any important matter—a war, for example—that it was held to be righteous, and likely to be favored by the gods. The burgesses, or householders, were divided into *curiæ*—i.e., 'wardships,' connected probably with *cura* and *curare*, 'to care for,' rather than with *quiris*, and the Sabine *cures*, as Varro thinks. Ten households formed a *gens* (a 'clan' or 'family'); 10 clans, or 100 households, formed a *curia*, or wardship; and 10 wardships, or 100 clans, or 1,000 households, formed the *populus*, *civitas*, or community. But as Rome was a *synoikismos* of three cantons, the actual number of wards was 30, of clans 300, and of households 3,000. Every household had to furnish one foot-soldier [hence the name *milēs*, the 'thousandth walker'—from *mil*, and *eo* (?), 'to go'], and every clan a horseman and a senator. Each ward was under the 'care' of a special warden (the *curio*), had a priest of its own (the *flamen curialis*), and celebrated its own festivals. None but burgesses could bear arms in defense of the state [hence their designation, *populus*, 'the warrior body,' connected with *populari*, 'to lay waste,' and *popa*, 'the priest, or priest's assistant, who felled the victim at the altar—the sacred butcher']. In the old litanies the blessing of Mars is invoked on the *pilumnus populus* ('the spear-armed warrior body'), and when the *rex* addressed them, it was by the name of *quirites* ['lancemen'—from *quiris*, or *curis*, a 'lance,' and *eo*, 'to go']. The original Roman army, or *legio* (i.e., 'the gathering'), was composed of three 'hundreds' (*centuriæ*) of horsemen (*celerēs*—i.e., 'the swift,' or *flexuntēs*, 'the wheelers'), under their divisional leaders (*tribuni celerum*); and three 'thousands' of footmen (*militēs*), also under divisional leaders (*tribuni*

militum); to whom were added a number of light-armed skirmishers (*velites*), especially 'archers' (*arquites*). The *rex*, as we have said, was usually the general; but as the cavalry force had a colonel of its own (*magister equitum*), it is probable that the *rex* placed himself at the head of the infantry. Military service was no doubt the prime duty of the Roman burgesses, but the king could impose upon them any labors that he reckoned necessary or advantageous to the welfare of the state, such as erection of public edifices, tilling of the royal demesnes, execution of royal commissions, or the building of the city walls.

The 'foreign policy' of R. seems to have been aggressive from the first, and this character it retained as long as the aggrandizement of the state was possible. We have, it is true, no certain knowledge of the primitive struggles in which the enterprising and ambitious Roman burghers were engaged, but it appears from the legend that at a very early period the neighboring Latin communities of Antemnæ, Crustumerium, Ficulnea, Medullia, Cœnina, Corniculum, Cameria, Collatia, were subjugated. The crisis of the Latin War, however, was undoubtedly the contest with Alba Longa, in which that 'sacred metropolis' of Latium was destroyed, and its leadership passed to the conqueror. How deadly the struggle between the two was, may be inferred from the tragic details in which the legend abounds. As a rule, on the subjugation of a canton, the conquered inhabitants were allowed to remain in their open hamlets, but their *capitolium* was razed, their weekly market, their justice-court, their gods—everything, in short, strictly national—were removed to R., while they themselves were enrolled among the clients or plebs. But sometimes the inhabitants themselves, in whole or part, were transferred to R., and individuals or clans were even received into the ranks of the Roman burgesses, as in the case of Alba Longa. Some of the famous Roman *gentes* claimed to be of Alban descent—the Julii, Servilii, Quintilii, Cloelii, Geganii, Curiatii, and Metilii. The wars with the Etruscans of Fidenæ and Veii—assigned, like the destruction of Alba Longa, to the reign of Tullus Hostilius—were apparently indecisive; those with the Rutuli and Volsci, however, were probably more fortunate; but uncertainty hangs like a thick mist over the ancient narrative. Even the story of the Tarquins, though it belongs to the later period of the monarchy, is in many of its details far from credible. Both Niebuhr and Mommsen consider 'Tarquin the Proud' a historical personage, and, without accepting literally all the circumstances of the tradition, believe the general outline—his character, his exactions, his expulsion, and his desperate efforts for the recovery of the throne—to be trustworthy. The memory of such a monarch was likely to be preserved by the very strength of the hatred that he excited, and an act so daring as his expulsion (which was at the same time the death-knell of a system of government that had prevailed for ages) could hardly be a mere invention, though it might be overlapped with fold upon fold of picturesque

fiction. The view taken by Napoleon III. (see *Histoire de Jules César*, I.), that the primitive monarchy had served its purpose, and had consequently to disappear, is perhaps not so erroneous as the oracular language of the imperial author would lead us to suppose. The aristocracy or *populus* had become so much more powerful than the individual *rex*, that they wished to possess *de jure* as well as *de facto* the supreme authority. The pride and tyranny of a Tarquin may well have aided in furthering their designs.

Meanwhile a great internal change had taken place in Rome. This is usually designated the Servian 'Reform of the Constitution,' though the expression tends to mislead. There was nothing directly political in the 'reform.' It was a reform only in the burgess-levy—i.e., in the mode of raising the army. Formerly, as we have seen, none but burgesses could bear arms in defense of the state; but the increase of the general population, caused partly by annexation of the conquered Latin communities and partly by time, had totally altered the relation in which the non-burgesses, or *plebs*, originally stood to their political superiors. The *plebs* could, of course, acquire property and wealth, and could bequeath it just as legally as the *populus*; moreover, such of the Latin settlers as were wealthy and distinguished in their own communities did not cease to be so when they were amalgamated with the Roman 'multitude.' It was therefore felt to be no longer judicious to let the military burdens fall exclusively on the old burgesses, while the rights of property were equally shared by the non-burgesses. Hence the new arrangement, known in Roman history as the formation of the *Comitia Centuriata*. When or with whom the change originated, it is impossible to say. The legend assigns it to Servius Tullius, predecessor of Tarquin the Proud; and it was the work probably of some kingly ruler who saw the necessity of reorganizing the national forces. That it cannot be regarded as a change wrought by party-zeal, is obvious when we reflect that it conferred no rights, but only imposed duties on the plebeians. Its details were briefly as follows: Every Roman freeholder from the age of 17 to 60, whether patrician or plebeian, was made liable to serve in the army; but he took his place according to the amount of his property. The freeholders were distributed into five *classes* [i.e., 'summonings'—from *calare*, to 'summon' or 'call out'], and these *classes*, all of whom were infantry, were again sub-divided into *centuriæ* (hundreds). The *first* class, which were required to possess property valued at 100,000 ases, or an entire hide of land, furnished 82 'hundreds;' the second, property valued at 75,000 ases, or $\frac{3}{4}$ of a hide of land, furnished 20 'hundreds;' the third, property valued at 50,000 ases, or $\frac{1}{2}$ hide of land, furnished 20 'hundreds;' the fourth, property valued at 25,000 ases, or $\frac{1}{4}$ hide of land, furnished 20 'hundreds;' and the fifth, property valued at 12,500 ases, or $\frac{1}{8}$ hide of land, furnished 32 'hundreds.' A single 'hundred' was, moreover, added from the ranks of the non-freeholders, or

proletarii (mere 'children-begetters'), though it is possible that from the same order came the two 'hundreds' of 'horn-blowers' (*cornicines*) and 'trumpeters' (*tibicines*), attached to the fifth class. Thus the infantry 'hundreds' amounted to 175—that is, 17,500 men, besides whom were 18 'hundreds' of *equites* ('horsemen'), chosen from the wealthiest burgesses and non-burgesses; so that the Roman army now numbered in all nearly 20,000 men. We have stated that the original design of this new arrangement was merely military, but it is easy to see that it would soon produce political results. Duties and rights are correlative: the former suggest the latter, and create a desire for their attainment. Hence the Servian military reform paved the way for the grand political struggle between the patricians and the plebeians, which began with the first year of the Republic, and ended only with its dissolution.

The Roman Republic from Its Institution to the Abolition of the Decemvirate.—1. *Internal History.*—According to the legend, the expulsion of the Tarquins was the work mainly of their cousins, Junius Brutus and Tarquinius Collatinus, in revenge for the outrage on the honor of Lucretia; and was followed by the abolition of the monarchy. The date usually assigned to this event is B.C. 509. The story is intensely tragical, and if we must consider it poetry rather than fact, yet it may safely be taken as evidence that it was unbridled lust of power and self-gratification that brought ruin on the Romano-Tuscan dynasty. Of course, we can make nothing definite out of the early years of the republic. Dates and names, and even events, must go for very little. Valerius Publicola or Poplicola, Sp. Lucretius, M. Horatius, Lars Porsenna (q.v.) of Clusium, Aulus Postumius, with the glorious stories of Horatius Cocles and the battle of Lake Regillus, will not bear scrutiny. We must content ourselves with the knowledge of historical tendencies and general results. The change from 'kings' to 'consuls' [*consules*, 'those who leap together'—more generally, those who *act* together] was intended not to diminish the administrative power of the supreme rulers, but only to deprive them of the opportunity of doing harm—of becoming Tarquins; and this it effectually did by limiting their tenure of office to a year, and by numerous other restrictions. (For an account of their original functions, and of the subsequent modifications which these underwent, see CONSUL.) It is believed to have been about this time, and in consequence of the new political changes, that the old assessors of the king, e.g., the *quæstores parricidii*, formally became established magistrates instead of mere honorary counselors, and also that the priesthood became a more self-governing and exclusive body. During the regal period the priests were appointed by the king; but now the colleges of augurs and pontiffs began themselves to fill the vacancies in their ranks; while the vestals and separate 'flamens' were nominated by the pontifical college, which chose a president (*pontifex maximus*) for the purpose. The lapse of years, ever increasing the quantity of sacred lore, increased

its importance also, and the importance of those who specially studied it; and nothing comes out more clearly in the early history of the republic than the fact that the opinions of the augurs and pontiffs became more and more legally binding. This is to be connected with the fact that in every possible way the patricians or old burgesses—now rapidly becoming a mere *noblesse*—were seeking to rise on the ruins of the monarchy, and to preserve separate institutions for the benefit of their own order, when they could only with difficulty longer exclude the *plebs* from participation in common civic privileges. In the details given us of the ‘Servian Reform,’ we easily discern a spirit of compromise, the concessions made to the plebeians in the constitution and powers of the *Comitia Centuriata* being partially counterbalanced by the new powers conferred on the old burgess body, the *Comitia Curiata*—viz., the right of confirming or rejecting the measures passed in the lower assembly. Toward the new assembly, therefore, the old burgess body stood somewhat in the relation in which the house of lords stands to the house of commons in Britain; but the analogy must not be pushed too far; it is only general. The character of the senate altered under the same influences. Although it never had been formally a patrician body—although admission to it under the kings was obtainable simply by the exercise of the royal prerogative, yet, practically, 299 out of the 300 senators had always been patricians; but after the institution of the republic, we are told that the blanks in the senate were filled *en masse* from the ranks of the plebeians, so that of the 300 members less than half were *patres* (‘full burgesses’), while 164 were *conscripti* (‘added to the roll’)—hence the official designation of the senators, *patres et conscripti* (‘full burgesses and enrolled’).

As yet, however, it is to be observed the plebeians were rigorously excluded from the magistracies. They could vote—i.e., they could exercise legislative powers—but they had no share in the administration. None but patricians were eligible for the consulship, for the office of quæstor, or for any other executive function, while the priestly colleges rigidly closed their doors against the new burgesses. The struggle, therefore, between the two orders went on with ever-increasing violence. One point comes out very clearly from the narrative, however doubtful may be the particular details—viz., that the establishment of the republic and the reconstitution of the burgess body, instead of allaying discontent, fostered it. Power virtually passed into the hands of the capitalists; and though some of these were plebeians, yet they seem to have preferred their personal money-interests to the interests of their order, and to have co-operated with the patricians. The abuse by these capitalists of the *Ager Publicus*—that is, such portion of the land of a conquered people as had been taken from them, annexed to the Roman state, and let out originally to the patricians at a fixed rent (see AGRARIAN LAW)—together with the frightful severity of the law of debtor and creditor, whose effect was almost to ruin the small

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plebeian 'farmers' who constituted, perhaps, the most numerous section of the burgesses, finally led to a great revolt of the plebs, known as the 'Secession to the Sacred Hill,' the date assigned to which is B.C. 494. On that occasion the plebeian farmer-soldiers, who had just returned from a campaign against the Volscians, marched in military order out of Rome, under their plebeian officers, to a mount near the confluence of the Anio with the Tiber, and threatened to found there a new city, if the patricians did not grant them magistrates from their own order; the result was the institution of the famous plebeian tribunate (see TRIBUNE)—a sort of rival power to the patrician *consulate*, by means of which the plebeians hoped at least to be shielded from the high-handed oppressions of the wealthy. To the same period belongs the institution of the *ÆDILES* (q.v.). A little later, the *Comitia Tributa* emerged into political prominence. This was really the same body of burgesses as formed the *Comitia Centuriata*, but with the important difference, that the number of votes was not in proportion to a property classification: the poor plebeian was on a footing of equality with the rich patrician; each gave his vote, and nothing more. Hence the *Comitia Tributa* became virtually a plebeian assembly, and when the *Plebiscita* ('Resolutions of the Plebs,' carried at these *comitia*) acquired (as they did by the Valerian Laws passed after the abolition of the decemvirate) a legally binding character, the victory of the 'multitude' in the sphere of legislation was complete. From this time the term *populus* practically, though not formally, loses its exclusive significance; and thenceforth, when we speak of the Roman citizens, we mean indifferently patricians and plebeians. The semi-historical traditions of this period—for we are now (B.C. 5th c.) beginning to emerge out of the mythical era—unmistakably show that the institution of the tribunate led to something very like a civil war between the two orders. Such is the real significance of the legends of Caius Marcus, surnamed *Coriolanus* (q.v.); the surprise of the Capitol by the Sabine marauder Appius Herdonius, at the head of a motley force of political outlaws, refugees, and slaves; the migrations of numerous Roman burgesses with their families to more peaceful communities; the street-fights; the assassinations of plebeian magistrates; the annihilation by the Etruscans of the Fabian *gens*, who had left Rome to escape the vengeance of their order for having passed over to the side of the plebeians; and the atrocious judicial murder of Spurius Cassius, an eminent patrician, who also had incurred the deadly hatred of his order by proposing an agrarian law that would have checked the pernicious prosperity of the capitalists and overgrown landholders. Finally, B.C. 462, a measure was brought forward by the tribune C. Terentilius Ursa, to appoint a commission of ten men to draw up a code of laws for protecting the plebeians against the arbitrary decisions of the patrician magistrates. A fierce, even a frantic opposition was offered by the patricians, and the ten years that followed were literally a period of organized anarchy in

Rome. At length the nobles gave way; and the result was the drawing up of the famous code known as the *Twelve Tables*—at first *Ten*, to which two were afterward added—the appointment of the DECENVIRI (q.v.), and the abolition of all the ordinary magistrates, both patrician and plebeian. The government by decemvirs, however, lasted only two years; according to tradition, the occasion of its overthrow was the attempt of the principal decemvir, Appius Claudius (q.v.), to possess himself by violence of the beautiful daughter of Virginius, a Roman centurion; but the real cause was doubtless political, though the cruel lust of a Claudius may have afforded the occasion; the result of which was the restoration of the pre-decemviral state of things—the patrician consulate and the plebeian tribunate.

2. *External History*.—The external history of Rome, from the establishment of the republic to the abolition of the decemvirate, is purely military. The Romans fought incessantly with their neighbors. Long before the close of the regal period, they had acquired, as we have seen, the leadership of Latium, and in all the early wars of the republic they were assisted by their allies and kinsmen; sometimes also by other nations—e.g., the Hernicans, between whom and the Romans and Latins a league was formed by Spurius Cassius in the beginning of B.C. 5th c. The most important of these wars were those with the southern Etruscans, especially the Veientes, in which, however, the Romans made no success, and even suffered terrible disasters, of which the legend concerning the destruction of the Fabian *gens* on the Cremera, B.C. 477, may be taken as a distorted representation; the contemporaneous wars with the Volscians, in which Coriolanus is the most distinguished figure; and those with the Æqui, B.C. 458, to which belongs the fine legend of Cincinnatus (q.v.).

From the Abolition of the Decemvirate to the Defeat of the Samnites, and the Subjugation of all the 'Italians' (B.C. 449–265).—1. *Internal History*.—The leading political features of this period are the equalization of the two orders, and the growth of the new aristocracy of capitalists. After the abolition of the decemvirate, it seems—judging from the course of events—that the whole of the plebeian aristocracy, senators and capitalists (from motives of selfish aggrandizement), combined with the ‘masses’ of their order to make a series of grand attacks on the privileges of the old Roman noblesse. The struggle lasted 100 years; and ended, as only it could end, by the removal of all the social and political disabilities under which the plebeians had labored—though the stratagems and artifices to which the old aristocracy had recourse proved the reluctance with which they succumbed to fate. First, B.C. 445, only four years after the fall of the decemvirs was carried, the *Lex Canuleia* was passed, enacting that marriage between a patrician and plebeian should be legally valid. At the same time, a compromise was effected with respect to the consulship: instead of two patrician consuls, it was agreed that the supreme power should be intrusted to new officers

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termed 'Military Tribunes with Consular Power,' who might be chosen equally from the patricians or plebeians. Ten years later, B.C. 435, the patricians tried to render the new office of less consequence by transference of several of the functions hitherto exercised by consuls to two special patrician officers named *Censors* (q.v.). The 'censorship,' Mommsen remarks, 'gradually became the palladium of the aristocratic party, less on account of its financial influence, than for the sake of the right annexed to it of filling vacancies in the senate and in the equites.' B.C. 421 the quæstorship (see QUÆSTOR) was thrown open to the plebeians; B.C. 368 the mastership of the horse; B.C. 356 the dictatorship (see DICTATOR); B.C. 351 the censorship; B.C. 337 the pretorship (see PRETOR); and B.C. 300 the pontifical and augurial colleges. These victories were not all won without shedding of blood. How great was the exasperation of the patricians may be estimated from the story of Spurius Maelius, the rich plebeian, who was murdered simply because in a season of famine he sold corn at a very low price to the poor.

The only effect, it is to be observed, of these political changes was to increase the power of the rich plebeians; consequently, the social distress continued as before. No genuine national concord was possible so long as *that* remained unmitigated. Efforts were repeatedly made by individuals to remedy the evil, but without success. Such were the attempts of the tribunes Spurius Mæcilius and Spurius Metilius (B.C. 417) to revive the agrarian law of Spurius Cassius; and of the noble and patriotic patrician Marcus Manlius, who, though he had saved the Capitol during the terrible Gallic siege, was hurled from the Tarpeian Rock B.C. 384, on the customary charge, as groundless in his case as it was base, of aspiring to the monarchy; but at length, B.C. 367, after a furious struggle of 11 years, the famous Licinian Rogations (see AGRARIAN LAW) were carried, by means of which it was hoped that an end had been put to the disastrous dissensions of the orders. Thus, at least, we interpret the act of the dictator Camillus, who raised a temple to the goddess *Concord*, at the foot of the Capitol.

That these laws operated beneficially on the class in whose interest they were passed, viz., the plebeian farmers or middle class of the Roman state, is unquestionable; but events showed them inadequate to remedy the evil, and after a time they ceased to be strictly enforced. On the other hand, there can be as little doubt that, owing partly to these changes, and still more to the splendid and far-reaching conquests achieved in Italy during this period of internal strife by the Roman arms, the position of the plebeian farmer was decidedly raised. Not only were the 'general coffers filled' by the revenue drawn directly or indirectly from the subjugated lands, so that a *tributum* (a forced loan) seldom required to be enforced at home, but the numerous colonies which R. now began to send forth to secure her new acquisitions consisted entirely of the poorer plebeians, who always received a portion of the

land in the district where they were settled. The long struggle between the two orders was thus virtually at an end; but the date usually assigned to the termination of the strife is B.C. 286, when the *Lex Hortensia* was passed, which confirmed the Publilian Laws of B.C. 339, and definitely gave to the *Plebiscita*, passed at the Comitia of the Tribes, the full power of laws binding on the whole nation. Gradually, however, by steps which we have not room to trace, the importance of the popular assemblies declined, and that of the senate rose. This was due mainly to the ever-increasing magnitude of the Roman state, and to the consequent necessity of a powerful governing body. The senate, it will be remembered, originally possessed no administrative power at all, but now it commenced a series of vast usurpations whose best defense is that they excited no opposition among the community. Every matter of general importance—war, peace, alliances, founding of colonies, assignment of lands, building, the whole system of finance—came under its supervision and authority. Nor, on the whole, did it prove itself the unworthy arbiter of a nation's destinies. It was not a self-elected oligarchy, but was rather composed of the ablest representatives of both orders.

2. *External History.*—We have said that the military successes of Rome during this period of internal strife were great; but we can only briefly allude to them. The irruption of the Gauls into sub-Apennine Italy B.C. 391, though accompanied by frightful devastations, was barren of results, and did not materially affect the progress of Roman conquest. No doubt the battle on the Allia, and the capture and burning of Rome B.C. 390, were great disasters, but the injury was temporary. The vigilance of Manlius saved the Capitol, and the heroism of Camillus revived the courage and spirit of the citizens. Again and again in the course of B.C. 4th c., the Gallic hordes repeated their incursions into central Italy, but never again returned victorious. B.C. 367 Camillus defeated them at Alba; B.C. 360 they were routed at the Colline Gate; B.C. 358 by the dictator G. Sulpicius Peticius; and B.C. 350 by Lucius Furius Camillus. Meanwhile the Romans, aided by their allies, the Latins and the Hernicans, carried on the long and desperate struggle with the Æquians, Volscians, and Etruscans. Finally, but not till they had sustained repeated defeats, the Romans triumphed. The causes that led to the decline of the Etruscan power, which, at the close of the regal period in R., and during the infancy of the republic, had been enormous, both by sea and land, cannot be considered at length here. Suffice it to say, that the terrible irruption of the Gallic barbarians into Etruria, and the victories of the Samnites in Campania, where also the Etruscans had established themselves, as well as the miserable jealousies of the different cities, combined to paralyze the power of this people, and paved the way for the final triumph of Rome. But even before the Gauls had crossed the Apennines, the fate of Etruria was virtually sealed. The fall of Veii (q.v.), B.C. 396, was really the death-knell of

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Etruscan independence. Although the story has undoubtedly descended to us in a mythical dress, the siege of Veii is not to be placed in the same category with the siege of Troy, albeit, like it, it is said to have lasted ten years. Falerii, Capena, and Volsinii—all sovereign cities of Etruria—hastened to make peace, and by the middle of B.C. 4th c. the whole of southern Etruria had submitted to the supremacy of Rome, was kept in check by Roman garrisons, and was denationalized by the influx of Roman colonists. In the land of the Volsci, likewise, a series of Roman fortresses was erected to overawe the native inhabitants—Velitræ, on the borders of Latium, as far back as B.C. 492, Suessa Pompetia B.C. 442, Circeii B.C. 303, Satricum B.C. 335, and Setia B.C. 382: besides, the whole Volscian district, known as the Pontine Marshes (q.v.), was distributed into farm-allotments among the plebeian soldiery. Becoming alarmed, however, at the increasing power of Rome, the Latins and Hernicans withdrew from the league, and a severe and protracted struggle took place between them and their former ally. Nearly 30 years elapsed before the Romans succeeded in crushing the malcontents, and restoring the league of Spurius Cassius. In the course of this war, the old Latin confederacy of the 'Thirty Cities' was broken up B.C. 384, probably as being dangerous to the hegemony (now rapidly becoming a supremacy) of Rome; and their constitutions were more and more assimilated to the Roman. The terms of the treaty made by the Romans, B.C. 348, with the Carthaginians, show how very dependent was the position of the Latin cities. Meanwhile, the Romans had pushed their garrisons as far south as the Liris, the n. boundary of Campania. Here they came into contact with the Samnites (q.v.), a people as heroic as themselves, their equals in everything but unity of political organization; perhaps their superiors in magnanimity.

The Samnites had long been extending their conquests in s. Italy as R. had in the centre and in Etruria. Descending from their native mountains between the plains of Apulia and Campania, they had overrun the lower part of the peninsula, and under the name of Lucanians, Brutians, etc., had firmly established themselves, threatening everywhere the prosperity of the Greek and Etruscan possessions in those regions. But it was the dwellers in the original mountain territory who properly bore the name of Samnites, and between them and the Romans now began a tremendous struggle; the former fighting heroically for preservation of their national freedom—the latter warring with superb though almost demoniac valor for dominion. We cannot afford space to recount the circumstances that brought the collision, further than to state that the Samnite colonies had in the course of time become so detached in sympathy, and so changed in character and interests, from the parent stock, as almost to forget their original unity. Hence, hostilities were common between them; and the forays of the Samnite highlanders in the rich lowlands of Campania were dreaded above all things by their more polished but degenerate kinsmen of Capua, who had acquired

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the luxurious habits of the Greeks and Etruscans. It was really to save themselves from these destructive forays that the Campanians offered to place themselves under the supremacy of Rome; thus Romans and Samnites were thrown into direct antagonism. The Samnite wars, of which three are reckoned, extended over 53 years, B.C. 343-290. The second, generally known as the 'Great Samnite War,' lasted 22 years, B.C. 326-304. At first, the success was mainly on the side of the Samnites; and after the disaster at the *Caudine Forks* (q.v.), it seemed as if Samnium and not Rome was destined to become the ruler of Italy; but the military genius of the Roman consul, Quintus Fabius Rullianus (see **FABIUS**), triumphed over every danger, and rendered all the heroism of Caius Pontius, the Samnite leader, unavailing. B.C. 304 Bovianum, capital of Samnium, was stormed, and the hardy highlanders were compelled to acknowledge the supremacy of the republic. The third war, B.C. 298-290, was conducted with all the sanguinary energy of despair; but though the Etruscans and Umbrians now joined the Samnites against the Romans, their help came too late. The victory of Rullianus and of P. Decius Mus, at Sentinum B.C. 295, virtually ended the struggle, and placed the whole Italian peninsula at the mercy of the victor. It only remains to be mentioned that at the close of the first Samnite war, which was quite indecisive, an insurrection burst out among the Latins and Volscians, and spread over the whole territory of these two nations; but the defeat inflicted on the insurgents at Trifanum B.C. 340, by the Roman consul, Titus Manlius Imperiosus Torquatus, almost instantly crushed it, and in two years the last spark of rebellion was extinguished. The famous Latin League was now dissolved; many of the towns lost their independence, and became Roman *municipia*; new colonies were planted both on the coast and in the interior of the Latino-Volscian region; and finally, so numerous were the farm-allotments to Roman burgesses, that two additional tribes had to be constituted.

From the Close of the Samnite to the Commencement of the Punic Wars.—The war with Pyrrhus (q.v.), King of Epirus, which led to the complete subjugation of Peninsular Italy, is a sort of pendant to the great Samnite struggle. It was brought about in this way: The Lucanians and Bruttians, who had aided the Romans in the Samnite wars, considering themselves cheated of their portion of the spoil, entered into negotiations with the enemies of their former associate throughout the peninsula. A mighty coalition was immediately formed against Rome, consisting of Etruscans, Umbrians, and Gauls in the north, and of Lucanians, Bruttians, and Samnites in the south, with a sort of tacit understanding on the part of the Tarentines that they would render assistance after a time. The rapidity with which it took shape shows alike the fear and the hatred inspired by the Roman name. In a single year the whole north was in arms, and once more the power and even the existence of Rome, were in deadly peril. An entire Roman army of 13,000 men was annihilated at Aretium B.C. 284 by the

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Senonian Gauls; but that dauntless spirit which the republic never failed to display in the crisis of its fortunes, and which gives grandeur to its worst ambition, now shone out in the fulness of its splendor. Publius Cornelius Dolabella marched into the country of the Senones at the head of a large force, and literally extirpated the whole nation, which thenceforth disappeared from history. Shortly afterward, the bloody overthrow of the Etrusco-Boian horde at Lake Vadimo, B.C. 283, shattered to pieces the northern confederacy, and left the Romans free to deal with their adversaries in the south. The Lucanians were quickly overpowered B.C. 282; Samnium, broken by its long and luckless struggle, and overawed by the proximity of a Roman army, could do nothing. A rash and unprovoked attack on a small Roman fleet now brought down on the Tarentines the vengeance of Rome, at the very moment when Rome was free to exert all her terrible power. Awaking to a sense of their danger, the Tarentines invited Pyrrhus (q.v.) over from Epirus, and appointed him commander of their mercenaries. This royal adventurer, a man of most brilliant, but also of most volatile genius, resembling no modern general so much as Charles Mordaunt, Earl of Peterborough, arrived in Italy B.C. 280 with a small army of his own and a vague notion in his head of founding a Hellenic empire in the West, that should rival that created in the East by his kinsman, Alexander the Great. It is not necessary to narrate here the varying fortunes of the struggle between Pyrrhus and the Romans, which lasted only six years, and ended in his return to Epirus without accomplishing anything.

After Pyrrhus, baffled in his attempts to check the progress of Rome, had withdrawn to Greece, the Lucanians and Samnites, whom his reputation and original successes had induced to rise once more against the dreaded foe, continued the unequal struggle, but 'even the bravery of despair,' as it has been said, 'comes to an end; the sword and the gibbet at length (B.C. 269) carried peace even into the mountains of Samnium.' Tarentum had surrendered three years earlier; and now from the Macra and the Rubicon to the Strait of Messina, there was not a nation in Italy that did not acknowledge the supremacy of Rome. Distant kingdoms began to feel that a new power had risen in the world; and when Ptolemy Philadelphus, sovereign of Egypt, heard of the overthrow of the famous Epirote warrior, he sent an embassy to Rome B.C. 273, and concluded a treaty with the republic. To secure their new acquisitions, the Romans established in the south military colonies at Pæstum and Cosa, in Lucania, B.C. 273; at Beneventum B.C. 268, and at Æsernia B.C. 263, to overawe the Samnites; and in the north, as outposts against the Gauls, Ariminum B.C. 268, Firmum, in Picenum B.C. 264, and the burgess colony of Castrum Novum. Preparations were also made to carry the great Appian highway as far as Brundisium, on the Adriatic, and for colonization of the latter city as a rival emporium to Tarentum.

The political changes were almost as important as the

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military. The whole population of Peninsular Italy was divided into three classes—1. *Cives Romani*, or such as enjoyed the full burgess privileges of Roman citizens; 2. *Nomen Latinum*—i.e., such as possessed the same privileges as had pertained to the members of the quondam Latin League—viz., an equality with the Roman burgesses in matters of trade and inheritance, the privilege of self-government, but no participation in the Roman franchise, and consequently no power to modify the foreign policy of the state; 3. *Socii*, or ‘Allies,’ to some of whom were conceded most liberal privileges, while others were governed in almost despotic fashion. The *Cives Romani* no longer embraced merely the inhabitants of the old Roman community, the well known ‘tribes’ (of which there were now 33), but all the old burgess colonies planted in Etruria and Campania, besides such Sabine, Volscian, and other communities as had been received into the burgess body on account of their proved fidelity in times of trial, together with individual Roman emigrants or families of such, scattered among the *municipia*, or living in villages by themselves. The cities possessing the *Latinum Nomen* included most of the ‘colonies’ sent out by Rome in later times, not only in Italy, but even beyond it; the members of which, if they had previously possessed the Roman franchise, voluntarily surrendered it instead of an allotment of land. But any ‘Latin’ burgess who had held a magistracy in his native town might return to Rome, be enrolled in one of the tribes, and vote like any other citizen. The *Socii* comprised all the rest of Italy, as the Hernicans, the Lucanians, the Bruttians, the Greek cities, etc. All national or cantonal confederacies and alliances among the Italians were broken up, and no means were left unemployed by the victors to prevent their restoration.

The Punic Wars.—For the origin of Carthage, and the steps by which she rose to power, see CARTHAGE. At the time when Carthage came into collision with Rome, she was indisputably the first maritime empire in the world, ruling as absolutely in the central and western Mediterranean Sea as Rome in the Italian peninsula. Between the Carthaginians and the Romans there had long existed a nominal alliance—the oldest treaty dating as far back as B.C. 6th c. But this alliance had never had any real significance, and latterly the two nations had come to regard each other with distrust. The incident that occasioned the outbreak was trivial: suffice it to say that B.C. 264 war was formally declared between the two nations, and incomparably the most terrible contest in which Rome was ever engaged began.

Not following minutely the course of the famous Punic wars (for whose details—see CARTHAGE: HAMILCAR: HANNIBAL: HASDRUBAL: HIERO: REGULUS: METELLUS: FABIVS: MARCELLUS: SCIPIO: NUMIDIA), we briefly indicate their character and result. The wars with Carthage, like those with Samnium, were three in number. The *first* lasted 23 years (B.C. 264–241), and was waged mainly for the possession of Sicily. Its leading feature was the crea-

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tion of a Roman navy, which, after repeated and tremendous misfortune, finally wrested from Carthage the sovereignty of the seas. Rome indeed had never been a merely agricultural state, as may be inferred from a variety of particulars—e.g., the antiquity of the galley in the city arms, of the port-dues on the exports and imports of Ostia, and of commercial treaties with transmarine states—but events had hindered it from engaging largely in maritime enterprise; and its shipping, at least its fleet, was still insignificant, though it had become master of nearly all the Italian seaboard. The necessity for a navy now began to show itself. Not only was there a difficulty felt in transporting troops to Sicily, but the shores of the mainland were completely exposed to the ravages of Carthaginian squadrons. So energetically did the senate set to work, that (we are told) in 60 days from the time the trees were felled, 120 ships were launched; and soon afterward the consul Caius Duilius gained a brilliant success B.C. 260 over the Carthaginians off Mylæ, on the n.e. coast of Sicily. The exultation of the Romans knew no bounds; and the 'triumph' which Duilius received, on his return to the city, had the aspect more of a carnival than of a noble ceremony. The *Columna Rostrata* ('Beaked Column') in the Forum preserved for ages the memory of the 'glorious victory.' Subsequent events, however, were less favorable. An invasion of Africa by Regulus (q.v.) ended in disaster, and the war, thenceforth confined to Sicily, miserably languished. Thrice was the Roman navy annihilated by storms at sea (B.C. 255, 253, and 249); and in spite of a series of unimportant successes by land, the Romans long found it impossible to make any impression on the great Carthaginian strongholds of Lilybæum and Drepanum, mainly because of the brilliant strategy with which they were held in check by Hamilcar Barca, father of Hannibal. At last, however, in a great sea-fight off the Ægates Isles (B.C. 242), a Roman fleet commanded by the consul Lutatius Catulus obtained a magnificent victory. The Carthaginian government, whose treasury was empty, and who had in vain tried to raise a state-loan in Egypt, could—for the present—continue the struggle no longer, and the whole of Sicily, except the territory of Hiero of Syracuse, who had been a firm ally of the Romans, passed into the hands of the victors, who constituted it a Roman province, and placed it under the government of a pretor.—A lapse of 23 years occurred before the second Punic war began, but during that interval neither Romans nor Carthaginians had been idle. Rome, with worse than 'Punic faith,' had bullied its weak and exhausted rival into surrendering Sardinia and Corsica, which, like Sicily, were transformed into a Roman province. In addition, the Romans had carried on a series of Gallic wars in n. Italy (B.C. 231–222), whose result was the complete humiliation of the barbarian Boii, Insubres, etc., and the extension of Italy to its natural boundary—the Alps. On the e. coast of the Adriatic also, the Romans made their power felt, by the vigor with which they suppressed Illyrian piracy (B.C.

219). Meanwhile, the descent of Hamilcar on the Spanish coast was followed, after some ineffectual opposition from the natives, by the establishment of a new Carthaginian empire, or at least a protectorate, in the West; and thus, almost before the Romans were aware of it, their hated rival had made good her losses again, and was even able to renew the struggle in more daring fashion than before. How confident the bearing of the Carthaginians had become; may be seen from the fearless spirit in which they accepted the Roman challenge, and entered on the *second* Punic—or (as the Romans called it) the *Hannibalic*—war, whose grand events were the crossing of the Alps by Hannibal, the terrible disasters of the Romans at Lake Trasimene (q.v.) and Cannæ (q.v.), and the final overthrow of Hannibal at Zama (q.v.), B.C. 202, by Scipio, which once more compelled the Carthaginians to sue for peace. It was with Carthage as with Samnium. The *second* war virtually sealed her fate, and the *third* displayed only the frantic heroism of despair. Her Spanish possessions, like her Sicilian, passed to the Romans (who formed out of them the provinces *Hispania Citerior* and *Hispania Ulterior*); so did her protectorate over the Numidian sheiks. She was forced to surrender her whole navy (excepting ten triremes), and all her elephants, and to solemnly swear never to make war either in Africa or abroad, except with consent of her vanquisher. In a word, the imperial supremacy of Rome was now as unconditional in the w. Mediterranean as on the mainland of Italy. Her relations, indeed, to the conquered Italian nationalities became much harsher than they had formerly been; for, after the first victories of Hannibal, these had risen against her. The Picentes, Bruttii, Apulians, and Samnites were deprived either of the whole or the greater part of their lands—some communities were actually turned into serfs—the Greek cities in Lower Italy, most of which also had sided with Hannibal, became the seats of burgess-colonies. But the loss of life and of vital prosperity was frightful. ‘Numbers of flourishing townships,’ says Mommsen, ‘400, it was reckoned, were destroyed and ruined.’ Slaves and desperadoes associated themselves in robber-bands, of the dangers of which an idea may be formed from the fact that in a single year, B.C. 185, 7,000 men had to be condemned for robbery in Apulia alone; the extension of the pastures, with their half savage slave-herdsmen, favored this mischievous barbarizing of the land. But the exultation of victory closed the eyes and the ears of the Romans against every omen, and the perilous work of conquest and subjugation went on. B.C. 201–196, the Celts in the valley of the Po, who, with the fiery unwisdom of their race, had recommenced hostilities at the very moment Rome was freed from her embarrassments, were thoroughly subjugated; their territory was Latinized, but they themselves were declared incapable of ever acquiring Roman citizenship; and so rapidly did their nationality dissolve, that when Polybius, only 30 years later, visited the country, nearly all traces of Celtic characteristics had disappeared.

The Boii were finally extirpated about B.C. 193; the Ligurians were subdued B.C. 180-177; and the interior of Corsica and Sardinia about the same time. The wars in Spain were troublesome and of longer duration, but they were not serious. The natives were indeed perpetually in arms, and the Romans suffered frequent defeats from their sudden and impetuous insurrections; but in the end the superior discipline of the legions always prevailed, and the fiery and chivalrous tribes had to make ignominious submission. So little reliance, however, could be placed on these forced submissions, that the Romans felt it necessary to hold Spain by military occupation; hence arose the first Roman standing armies, and 40,000 troops were maintained in the Spanish peninsula year after year. The most distinguished successes were those achieved by Scipio himself, by Quintus Minucius B.C. 197-196, by Marcus Cato B.C. 195, by Lucius Æmilius Paulus B.C. 189, by Caius Calpurnius B.C. 185, by Quintus Fulvius Flaccus B.C. 181, and by Tiberius Gracchus B.C. 179-178.

Macedonian and Greek Wars.—The causes that led to the interference of R. in the politics of the East are too complicated to be given here, but the *Macedonian wars* resulted immediately from the alliance formed by Philip V. of Macedon with Hannibal after the battle of Cannæ. Like the Samnite and Punic, the Macedonian wars were three in number. The *first*, B.C. 214-205, was barren of results, mainly because the whole energies of Rome were directed to Spain and lower Italy; but the *second*, B.C. 200-197, though it lasted only a third of the time occupied by the first, taught Philip that another, and not he, must rule in Greece. The battle of *Cynoscephalæ* ('Dogs' Heads' Hills, a range in Thessaly) was followed by a treaty which compelled him to withdraw his garrisons from the Greek cities, to surrender his fleet, and to pay 1,000 talents toward the expenses of the war. Philip was thoroughly quelled, and, during the remaining 18 years of his life, he adhered (like old Hiero of Syracuse, though less sincerely) to his Roman alliance. But the miserable Ætolians, who had formed an alliance with Rome against Philip, with even more stupidity than insolence, quarrelled in wanton jealousy with their powerful 'friends,' and persuaded Antiochus (q.v.) of Syria to come over seas to Thessaly, and fight them. A similar fate befell him to what had befallen Philip. After a war of three years, he found himself compelled to surrender all his possessions in Europe and Asia Minor, all his elephants and ships, and to pay 15,000 Euboic talents (\$18,300,000) within 12 years. Next year the Ætolians were crushed, and, a little later, the despicable quarrels between the Achæians and Spartans led to a general Roman protectorate over the whole of Greece.

Philip V. of Macedon, dying B.C. 179, was succeeded on the throne by his eldest son, Perseus (q.v.), who resolved once more to try the fortune of war with the Romans; and B.C. 172 the *third* and *last* Macedonian war began, whose result after four years of fighting was the utter destruction of the Macedonian army at Pydna B.C. 168, by the Roman

consul Lucius Æmilius Paulus (q.v.), the capture of the king, who adorned the triumph of the conqueror, and the dismemberment of the Macedonian empire, which was broken up into four oligarchic republics, the members of which were subjected to severe disqualifications; while in Greece itself, trials and executions for implication in the war of Perseus spread terror everywhere; the conspicuous 'patriots'—i.e., all who had made themselves notorious by their anti-Roman and Macedonian policy—were deported to Italy; further, the imperial republic stopped Antiochus Epiphanes in his career of Egyptian conquest, ordered him instantly to abandon his acquisitions, and accepted the protectorate of Egypt, which the grateful and frightened monarch offered to Rome B.C. 168. Even the allies of Rome—the Pergamense, the Rhodians, etc.—were treated with shocking harshness and injustice. We may here, for the sake of connection, anticipate the course of history, and mention the last *Greek* and *Punic* wars. Both of these came to an end in the same year, B.C. 146. The former was caused by an expiring outburst of pseudo-patriotism in the Achaian League, consequent on the return of the exiles from Rome, and was virtually closed on the siege and destruction of Corinth (q.v.) by the consul Mummius. The latter was not so much a war as a bloody sacrifice to the genius of Roman ambition. After Hannibal's death, his party in Carthage seems to have recovered the ascendancy, and as, coincident therewith, the commercial prosperity of the city began to revive, a bolder front was shown in resisting the encroachments of Masinissa, the Numidian ruler, whom the Roman senate protected and encouraged in his aggressions. This was enough. Fierce old Cato only expressed the instinctive sentiment of the Roman burghesses when he came to utter incessantly *Delenda est Carthago*, and B.C. 149 the senate adopted his barbarous conviction. After a siege of three years, in which the inhabitants showed superhuman energy and heroism, Carthage was stormed by Scipio Africanus Minor, and the Carthaginian empire vanished forever from the earth.

Position of Rome at the Close of the Punic Wars, and Sketch of Its Subsequent Social Condition to the Termination of the Republic.—'Polybius dates from the battle of Pydna the full establishment of the universal empire of Rome. It was in fact the last battle in which a civilized state confronted Rome in the field on a footing of equality with her as a great power; all subsequent struggles were rebellions or wars with peoples beyond the pale of the Romano-Greek civilization—the barbarians, as they were called. The whole civilized world thenceforth recognized in the Roman senate the supreme tribunal, whose commissioners decided in the last resort between kings and nations; and, to acquire its language and manners, foreign princes and noble youths resided in Rome.' But contemporaneous with this enormous extension of power and authority in foreign lands, the national character underwent complete and fatal alteration. The simplicity and stern integrity of life, the religious gravity of deportment, and the fidelity with

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which common civic and household duties were discharged—well expressed in the saying of Cato, that it was ‘better to be a good husband than a great senator’—which in early times nobly distinguished the Roman burgess, had now nearly disappeared. Those hardy virtues—frugality, temperance, justice, and rectitude—which, combined with courage and energy, had given the strength to the nation that made it great, required for their permanence the social conditions out of which they sprang. But the class of peasant proprietors who had laid the foundations of Roman greatness were either extinct or no longer what they had been. The original causes of their social degradation have been already noticed, and here it is necessary to say only that the victories of R. abroad furthered rather than retarded that degradation. The long and distant wars made it more and more impossible for the soldier to be a good citizen or a successful farmer. The freedom and licentiousness of camp-life, the sweets of pillage and rapine, ever grew more pleasant to the Italian burgess and colonist; thus indolence, inaptitude, and spendthrift habits aided the greedy designs of the capitalists, and in most cases the paternal acres gradually slipped into the possession of the great landlords, who found it more profitable to turn them into pasture or cultivate them by gangs of slaves. The rise of the slave-system—though an inevitable result of foreign conquest—was, indeed, the most horrible curse that ever fell on ancient Rome, and the atrocities inflicted on its unhappy victims are far beyond the possibility of description; Mommsen does not exaggerate when he considers it probable that ‘compared with the sufferings of the Roman slaves, the sum of all negro suffering is but a drop.’ If the Italian farmer honorably strove to retain his small farm, he was exposed to the competition of the capitalists who shipped immense quantities of corn from Egypt and other granaries, where slave-labor rendered its production cheap, and of course he failed in the unequal struggle. Not less pernicious was the change that passed over the character of the rich. We have already shown how the old Roman patricians lost their exclusive privileges, how the plebeians gradually acquired full equality with them, and how the germs of a new social aristocracy originated, based on wealth rather than pedigree, and comprising both plebeians and patricians. During the 4th and 3d c. B.C., the political power of this order immensely increased: in fact, the whole government of the state passed into their hands. They became an oligarchy, and, while it is not to be denied that they displayed extraordinary ability in the conduct of foreign affairs, the vices inseparable from oligarchic rule—selfishness, nepotism, and arrogance, of which Scipio is a striking example—gradually became rampant. Regarding themselves as the Roman community *par excellence*, and the poor burgesses as a mere *canaille*, whose wishes and interests were unworthy of a moment’s consideration, they virtually relapsed into the exclusiveness of the ancient *populus*, with this difference for the worse, that their wealth, influence, and pride were a thousand-

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fold greater than those of Coriolanus or Camillus. But far worse than even the nepotism and selfishness of the nobles was their ever increasing luxury and immorality. When Rome had conquered Greece, and Syria, and Asia Minor, the days of her true greatness were ended. The wealth that poured into the state coffers, thence to be (really, if not formally) distributed among the clique of nobles, the treasures which victorious generals acquired, enabled them to gratify to the full the morbid appetites for pleasure engendered by exposure to the voluptuousness of the East. Such results were, it is true, not brought about in a day, nor without resolute protest on the part of individual Romans. The attitude of Cato Major toward the Hellenizing tendencies of his brother nobles was doubtless patriotic, and posterity has been generous in its laudation of his antique virtue; but Cato Major was nevertheless only a political fanatic and incarnate anachronism. So long as Rome chose to subdue foreign nations, and to hold them by the demoralizing tenure of conquest—i.e., as mere *provinces*, whose inhabitants, held in check by a fierce and unscrupulous soldiery (like the Kabyles of Algeria by the French, or, until recently, the Hindus by the British), neither possessed political privileges nor dared cherish the hope of them—it was morally impossible for the citizens, either at home or abroad, to resume the simple and frugal habits of their forefathers. After Cato's time, things grew worse instead of better; nor from that period, down to the final dissolution of the empire, was a single *radical* reform ever permanently effected. The momentary success of Tiberius, and of his far abler brother, Caius Gracchus (q.v.), in their desperate and revolutionary attempts to prevent the social ruin of the state, by breaking down the powers of the senate, redistributing the domain lands, reorganizing the administration, and partially restoring the legislative authority of the popular assemblies, hardly survived their death; and the reaction that ensued proved that the senate, like the Bourbons, could learn nothing from adversity, and that the rabble of the city were incapable of elevation or generosity of political sentiment. Henceforth, the malversation of the public money by pretors and quæstors became chronic, and the moral debauchery of the mob of the capital, by the largesses of ambitious politicians and the vile flattery of demagogues, complete. The old Roman faith, so strong and stern, disappeared from the heart. The priests became Pharisees, the nobles 'philosophers' (i.e., unbelievers), their wives practicers of oriental abominations under the name of 'mysteries,' while the poor looked on with unmeaning yet superstitious wonder at the hollow but pompous ceremonies of religion. It would serve no useful purpose to dwell longer on these aspects of Roman society, and we turn to sketch in a few words the course of outward events to the close of the republic.

From the Destruction of Carthage to the Termination of the Republic.—We have already alluded to the wars waged in Spain during the first half of the 2d c. B.C. The humane and conciliatory policy pursued toward the natives

by Tiberius Sempronius Gracchus, father of the ill-fated tribunes, brought about a peace B.C. 179 that lasted 25 years; but B.C. 153 a general rising of the Celtiberians took place, followed by another on the part of the Lusitanians of Portugal. The struggle maintained by these gallant barbarians against their mighty oppressor lasted, with intervals of peace, for 20 years; but ended, in spite of gleams of brilliant success, as such contests invariably do, in the final overthrow of the undisciplined and uncivilized combatant. All the valor of the shepherd-warrior Viriathus (q.v.), even if the assassin's steel had spared his life, would not have prevented the annexation of Lusitania to the Roman empire, nor did the unsurpassable heroism of the besieged Numantines avail to baffle the military skill of the younger Scipio.

Toward the conclusion of the Numantine war occurred the first of those horrible social outbreaks known as 'servile' or 'slave' wars, which marked the later ages of the republic. The condition of the slaves has been already referred to; but what aggravated the wretchedness of their lot was the fact that most of them had been originally freemen—not inferior in knowledge, skill, or accomplishments to their masters, but only in force of character and military prowess. The first slave insurrection broke out in Sicily B.C. 134, where the system was seen at its worst. Its leader was one Eunus, a Syrian, who, mimicking his native monarch, took the title of King Antiochus. The suddenness and barbaric fury of the revolt for a time rendered all opposition impossible. The slaves overran the island, like demoniacs let loose; and routed one Roman army after another. But a slave insurrection has no aim beyond immediate revenge, and when the first wild paroxysms of ferocity are over, it becomes powerless, more even from a moral than a physical exhaustion, and can be quelled with ease. B.C. 132 the consul Publius Rupilius restored 'order' in the island. In the East, fortune continued to smile upon the Roman arms. Attalus III., Philometor, a villainous despot of the true oriental stamp, who massacred or poisoned every one that ventured to give him advice, dying B.C. 133, bequeathed his client-kingdom of Pergamus to its protector—Rome; and after a fierce struggle with an ambitious pretender called Aristonicus, the Romans obtained possession of the splendid bequest, and formed it into the province of Asia, B.C. 129.

We may here enumerate the different provinces into which the Roman senate divided its foreign conquests, in the order of their organization: 1. Sicily, B.C. 241; 2. Sardinia and Corsica, B.C. 238; 3. Hispania Citerior, and 4. Hispania Ulterior, B.C. 205; 5. Gallia Cisalpina, B.C. 191; 6. Macedonia, B.C. 146; 7. Illyricum, about B.C. 146; 8. Achaia (or southern Greece), about B.C. 146; 9. Africa (i.e., the Carthaginian territory), B.C. 146; 10. Asia (kingdom of Pergamus), B.C. 129. A few years later, B.C. 118, an 11th was added by the conquest of the southern part of Transalpine Gaul, and was commonly called, to distin-

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guish it from the rest of the country, 'the Province;' hence the modern *Provence*.

In Africa the overthrow of Jugurtha (q.v.), B.C. 104, by the consul Marius, added yet further to the military renown and strength of the republic. Meanwhile, from a new quarter of the world a gigantic and unforeseen danger threatened the Roman state. North of the Alps there had long been roaming in the region of the middle Danube an unsettled people called the CIMBRI (q.v.), whose original home was probably n.w. Germany. They came into collision with the Romans first in Noricum, B.C. 113; after which they turned westward, and poured through the Helvetian valleys into Gaul, where they overwhelmed alike the native tribes and the Roman armies. At Arausio (Orange), on the Rhone, B.C. 105, a Roman army of 80,000 was annihilated; but instead of invading Italy, the barbarians blindly rushed through the passes of the Pyrenees, wasted precious months in contests with natives tribes of Spain as valiant and hardy as themselves, and gave the Romans time to recover from the effects of their terrible defeat. Marius, who had just returned from his Numidian victories, was reappointed consul; and at Aquæ Sextiæ (Aix, in Dauphiné), he literally exterminated the dreaded foe, B.C. 102. Next year, near Milan, the same doom befell another northern horde—the Teutones, who had accompanied the Cimbri in their irruption into Spain, but on their withdrawal had parted from their associates in Gaul, forced their way back through Switzerland, and descended into Italy by the Tyrolese valleys. In the same year a second insurrection of the slaves in Sicily, which had reached an alarming height, was suppressed by the consul Marcius Aquillius.

For the next 10 years the internal history of Rome is a scene of wild confusion and discord. Marius, an admirable soldier, but otherwise a man of mediocre talents, and utterly unfit to act the part of a statesman, was the idol of the poor citizens, who urged him to save the state from the rapacious misgovernment of the rich. His attempts were pitiable failures; the brave, honest soldier fell into the hands of unscrupulous demagogues like Glaucia and Saturninus, and sullied the laurels that he had won in war by associating with men who did not hesitate to assassinate a political opponent. Not less fruitless was the wise and patriotic effort of Livius Drusus—'the Gracchus of the aristocracy'—to effect a compromise between the privileges of the rich and the claims of the poor. The oligarchic party among the former, i.e., the senate, were enraged by his proposition to double their numbers by the introduction of 300 equites; the latter by his offer to the 'Latins' and 'Allied Italians' of the Roman franchise. Drusus fell B.C. 91 by the steel of a hired bravo. Hardly a year elapsed before all the subject 'Italians'—i.e., the Marsians, Pelignians, Marrucinians, Vestinians, Picentines, Samnites, Apulians, and Lucanians—were up in wild and furious revolt against Rome; and, though the rebellion was crushed in less than two years by the superior

generalship of Marius, Sulla, and Pompeius Strabo (father of the 'great' Pompey), the insurgents virtually triumphed; for the promise which Drusus had held out to them of the 'Roman franchise' was made good by the *Lex Plautia Papiria*, B.C. 89. Yet the cost was terrible. It is calculated that 300,000 men—the flower of Rome and Italy—perished in the struggle; nor was even this tremendous holocaust sufficient. The jealousy that had long existed on the part of Marius toward his younger and more gifted rival, Sulla (q. v.), kindled into a flame of hate when the latter was elected consul B.C. 88, and received the command of the Mithridatic war—an honor which Marius coveted for himself. Then followed the fearful years of the 'civil wars' between the two chiefs, B.C. 88–82, when blood was spilled like water; and proscriptions and massacres were the order of the day. It was a 'Reign of Terror'—surpassing even the excesses of the French revolutionists. Sulla, leader of the aristocracy, which was nominally the party of order, triumphed; but the ferocious energy displayed by the revolutionists convinced him that the 'Roman franchise' could never again be safely withdrawn from the 'Italians;' and Roman citizens, therefore, they remained till the dissolution of the empire; but, on the other hand, his whole legislation was directed toward the destruction of the political power of the burgesses, and to the restoration to the senatorial aristocracy and priesthood of the authority and influence that they had possessed in the times of the Punic wars. That his design was to build up a strong and vigorous executive admits of no doubt, but the rottenness of Roman society was beyond the reach of cure by any human policy. It would be hopeless in our limits to attempt even the most superficial sketch of the complicated history of this period (see, however, for considerable fulness of detail, its leading personages—SERTORIUS: LUCULLUS: CRASSUS: POMPEY: MITHRIDATES: CÆSAR: CICERO: CATILINE: MARK ANTONY: LEPIDUS: CLEOPATRA: CLODIUS: BRUTUS: CASSIUS: CATO: AUGUSTUS). The utmost we here attempt is to enumerate results.

Abroad the Roman army continued irresistible. About 13 years after the extermination of the northern barbarians, the Cimbri and Teutones (B.C. 88), broke out in the far East the first of the 'Mithridatic wars,' which, like the Samnite, Punic, and Macedonian wars, were three in number. Begun by Sulla B.C. 88, they were brought to a successful close by Pompey B.C. 65, though the general that had really broken the power of Mithridates was Lucullus. The result was the annexation of the sultanate of Pontus, as a new province of the Roman republic. Next year, Pompey marched southward with his army, deposed Antiochus Asiaticus, King of Syria, and transformed his kingdom also into a Roman province, while in the following year, B.C. 63, he reduced to a state of dependence Phœnicia, Cœle-Syria, and Palestine, storming Jerusalem, and, to the horror of the Jews, violating their Holy of Holies. But what a terrible commentary it is upon these glittering

triumphs to remember that during the same year there was hatched at Rome the conspiracy of Catiline (q.v.), which, if it had not been crushed by an extraordinary display of decision by the consul Cicero, would have placed at least the city of Rome at the mercy of a crew of aristocratic desperadoes and cut-throats. One thing now becomes particularly noticeable—viz., the paralysis of the senate—that ‘governing board,’ as Mommsen calls it, once the mightiest power in the world. In spite of all that Sulla did to make it once more the governing body in the state, the power passed out of its hands. Torn by wretched jealousies, spites, piques (personal and partizan), it could do nothing but squabble or feebly attempt to frustrate the purpose of men whom it considered formidable. Thenceforth the interest as well as the importance of Roman history attaches to individuals, and the senate sinks deeper and deeper into insignificance, until at last it becomes merely the obsequious council of the emperors. The famous coalition of Crassus, Pompey, and Cæsar (known as the *First Triumvirate*), which dates from B.C. 60, proves how weak the government and how powerful individuals had become; and the same fact is even more dismally brought out by the lawless and bloody tribunates of Clodius and Milo, B.C. 58-57, when R. was for a while at the mercy of bravos and gladiators. The campaigns of Cæsar in Gaul, B.C. 58-50, by which the whole of that country was reduced to subjection; his rupture with Pompey; his defiance of the senate; the civil wars; his victory, dictatorship, and assassination; the restoration of the senatorial oligarchy; the second triumvirate, composed of Antony, Lepidus, and Octavian; the overthrow of the oligarchy at Philippi; the struggle between Antony and Octavian; the triumph of the latter, and his investment with absolute power for life B.C. 29, which put an end at least to the civil dissensions that had raged so long (and was therefore so far a blessing to the state)—for these, see the titles last referred to, above.

THE ROMAN EMPIRE.—When Augustus had gathered up into himself all the civil and military powers of the state, its political life was at an end; henceforth the voices of the citizens are dumb, and only the rude clamor of the legions or the Pretorians (q.v.) is heard, as emperors rise and fall. It is, indeed, amazing to consider how long brute force managed to keep down the elements of anarchy and dissolution in the empire; but it must be remembered that it was the East that ruined Rome, and not Rome the East. Even in the worst days of the republic, the Roman administrators of the provinces were acknowledged to be less unjust, ravenous, tyrannical, and cruel than the native princes and sultans; and the servile myriads of Asia Minor and Syria witnessed the deposition of their dynasts without a shadow of regret—sometimes even with a cry of joy. The Romans had therefore comparatively little difficulty in retaining and even increasing their eastern conquests, while the superior discipline of their well-trained soldiery enabled them to repel and subdue even the intrepid barbarians of the north, though singly these were probably more

gallant men than the rank and file of the imperial legions. But no military prowess, however great, will, beyond a certain time, serve to keep a nation alive that is otherwise moribund; and even Christianity, with all its antiseptic and revivifying influences, came too late to reanimate the national life of the empire. When Augustus died, A.D. 14, the Roman empire was separated in the north from Germany by the Rhine, but it included both Holland and Friesland; from about the Lake of Constance it extended along the Danube to lower Mœsia, though the imperial authority was far from being firmly established there. In the east, the boundary-line was, in general, the Euphrates. In the south, Egypt, Libya, and, in fact, the whole of n. Africa, as far w. as Morocco, and as far inland as Fezzan and the Sahara, acknowledged Roman authority. The Roman franchise was extended to transmarine communities, and in the w. provinces especially it became quite common. To keep this enormous territory, containing so many different races, quiet, an army of 47 legions and as many cohorts was maintained, most of whom were levied among the newly admitted burgesses of the w. provinces. The reigns of Tiberius (q.v.), Caligula (q.v.), Claudius (q.v.), Nero (q.v.), Galba (q.v.), Otho (q.v.), and Vitellius (q.v.), present little of moment in a general survey of the external history of the empire, though the chronicle of their lives—those of Galba and Otho perhaps excepted—has all the horrible and revolting interest that attaches to records of conspiracy, assassinations, poisonings, massacres, lust, debauchery, and delirious madness. The most notable incident of this period is probably the concentration of the Pretorian Guards in the vicinity of Rome during the reign of Tiberius, which Niebuhr even pronounces ‘the most momentous event in the history of the emperors;’ and not without reason, for, until their dissolution by Diocletian, they were the real sovereigns of the empire. In Nero’s time, Armenia was wrested from the Parthians, and restored to them only on condition of their holding it as a ‘fief’ of the empire; the Roman authority in England was likewise extended as far north as the Trent; and a great rebellion in Gaul (not, however, against Rome, but only against Nero), headed by Julius Vindex, a noble Aquitanian and a Roman senator, was crushed by T. Virginus Rufus, commander of the Germanic legions. During the profound peace that the empire had enjoyed everywhere, except on its frontiers—since the usurpation of the imperial authority—its material prosperity had greatly increased. The population was more than doubled; the towns became filled with inhabitants, and the wastes were peopled, wherever, at least, the Publicani (q.v.), or farmers-general, had not got the land into their rapacious hands; but the immorality of the rich, especially among the women, became yet worse than before, and virtuous men actually preferred concubinage with a slave, to marriage with a free-born Roman lady.

With the accession of Vespasian (q.v.) a better era commenced, which, if we except the reign of Domitian, con-

tinued uninterrupted for 100 years, comprising the reigns, besides those mentioned, of Titus (q.v.), Nerva (q.v.), Trajan (q.v.), Hadrian (q.v.), Antoninus Pius (q.v.), and Marcus Aurelius (q.v.). These all were men of fine and honorable character—some, e.g., Trajan, Hadrian, and Marcus Aurelius, were really illustrious rulers, worthy of the best days of Rome. Under all of them the provinces were better governed, the finances better administered, and public morals wonderfully improved. Nothing, indeed, is more clear than that, after the time of Vespasian, that *restaurator rei publicæ*, as he has been justly called, the worst days of Rome (in a moral point of view) were over. Never again did she give way to the horrible sensuality, gluttony, and profligacy of the 1st c. Bad emperors she had, as well as good, but they did not again succeed in corrupting their age. Blood, indeed, was shed freely enough, hostilities on the frontiers were as frequent as ever, and the violence and selfishness of military ambition were things that paganism had neither the care nor the power to quell; but the wild abyss of anarchy into which the empire latterly fell is less dreadful than the saturnalia of vice that filled the soul of Juvenal with indignation in the days of Domitian. How far the change was due to the influence of the ever-extending Christian religion, it is impossible to tell; but that Christianity did send a reinvigorating breath of new life through the old decaying body of the state is beyond dispute, and is written on the very face of the history of the first Christian centuries. The chief military events, from the days of Vespasian to those of Marcus Aurelius, are the final conquest of Britain by Agricola (q.v.), the final conquest of the Dacian monarchy, the victorious invasion of Parthia and of n. Arabia; and the conquest of the valley of the Nile as far south as Upper Nubia, by Trajan; the chastisement of the Marcomanni, Quadi, Chatti, etc., by Marcus Aurelius. Hadrian's long rule of 21 years was peaceful, and is memorable as the most splendid era of Roman architecture. The reigns of Commodus (q.v.), Pertinax (q.v.), and Didius Julianus (q.v.) were insignificant, except so far as they show the wretched confusion into which the administration of affairs inevitably fell when bad, or hated, or feeble rulers were invested with the purple. Able generals, respectable jurists, honorable senators, are not lacking, but their influence is personal and local. The reign of Septimius Severus, A.D. 193-211, is memorable as marking the first real change in the attitude of the emperors toward Christianity. The new religion was beginning to make itself felt in the state; and Severus, who was a Carthaginian, while his wife was a Syrian, may have felt special interest in a faith that, like themselves, was of Semitic origin. At all events, it was taken under imperial protection, and began to make rapid way. Caracalla (q.v.) and Elagabalus (q.v.) are perhaps the worst of all the emperors in criminality; but the mad brutality of the one and the monstrous debauchery of the other were purely personal affairs, and were regarded with horror by the citizens of the empire. The

reign of Alexander Severus is marked by the downfall of the Parthian dynasty of Persian kings, and the rise of the native Sassanidæ (q.v.), which, as Niebuhr observes, 'was one of the unluckiest things that could have happened to the Roman empire,' for the latter proved far more formidable enemies than the Parthian rulers. After the assassination of Severus (235) followed a period of confusion, bloodshed, and general mismanagement. The names of Maximin (q.v.), Maximus (q.v.), Balbinus (q.v.), Gordianus (q.v.), and Philip (q.v.) recall nothing but wretched quarrels, often ending in assassination. Then followed 'the beginning of the end.' The whole of Europe beyond the Roman frontier—the mysterious North—began to ferment. The Franks showed themselves on the Lower Rhine, the Swabians on the Main; while the Goths burst through Dacia, routed the forces of Decius (q.v.), and slew the emperor himself at Mount Hæmus, crossed the Euxine, and ravaged the whole northern coast of Asia Minor. A little later—during the reigns of Valerian (q.v.), Gallienus, and the so-called *Thirty Tyrants*—the empire was nothing but a wild distracted chaos, Franks, Alemanni, Goths, and Persians rushing in from their respective quarters, like vultures scenting prey. The Goths swept over the whole of Achaia, pillaging and burning the most famous cities—Athens, Corinth, Argos, etc., while the Asiatic hordes of Sapor committed even greater havoc in Syria and Asia Minor; and but for the courage and skill of Odenathus, husband of Zenobia (q.v.), who had built up a strong independent kingdom in the Syrian desert, with Palmyra for its capital, might have permanently possessed themselves of the regions which they merely devastated. With Claudius Gothicus (268–270), the fortunes of the empire once more brightened. By him, and his successors Aurelian (q.v.), Probus (q.v.), and Carus, the barbarians of the north and northwest, as well as the Persians in the east, were severely chastised. Nay, when Diocletian obtained the purple (284), it seemed as if the worst were over, and the empire might still be rescued from destruction; but his division of the empire into East and West, with separate *Augusti* and assistant *Cæsars*—though it sprang from a clear perception of the impossibility of one man administering successfully the affairs of so vast a state—led to those labyrinthine confusions and civil wars in which figure the names of Maximian (q.v.), Constantius (see CONSTANTINE), Galerius (q.v.), Maxentius (q.v.), Maximin (q.v.), Licinius (q.v.), and Constantine, and which were brought to a close only by the surpassing genius of the last-mentioned. Under Constantine (324–337) occurred the great revolution in Roman history—the establishment of Christianity as the religion of the state. He also transferred the seat of government from R. to Byzantium, on the Bosphorus, where he founded a new city, and named it Constantinople, after himself. But no sooner was the great statesman dead than the mutinous discords that he had kept down by the vigor of his rule broke loose; the empire underwent a triple division among

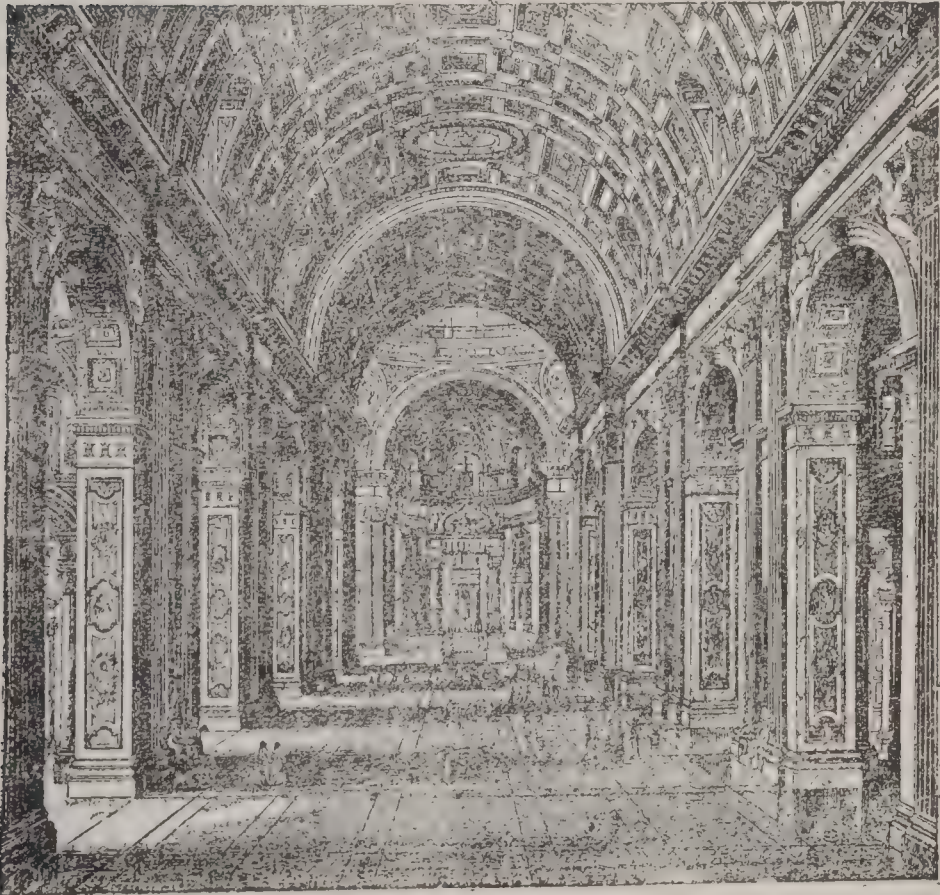
his sons; and though Constantius, the youngest, ere long became sole ruler, he lacked the genius of his father, and in his repeated campaigns against the Persians reaped nothing but disaster and disgrace. But the political fortunes of the empire now possess only a secondary interest; it is the struggles of the Christian sects and the rise of the Catholic Church that mainly attract the attention of the historian. There, at least, we behold the signs of new life—a zeal, enthusiasm, and inward strength of soul that no barbarism could destroy. Christianity came too late to save the ancient civilization, but it enabled the Roman world to endure three centuries of utter barbarism, and afterward to recover a portion of the inheritance of culture that it once seemed to have lost forever. Julian's attempt to revive paganism was a lamentable anachronism, but his efforts, when governor of Gaul under his kinsman Constantius, to repel the incessant incursions of the Franks and Alemanni, showed a fine valor and generalship, and were successful. The judgment of the poet Prudentius on 'the apostate' is that of posterity:

Perfidus ille Deo, sed non et perfidus orbi.

But after the death of Julian, the signs of the approaching dissolution of the empire became more unmistakable. Yet the great state seemed loath to die; and again and again in her death-agony, she put forth a momentary strength that amazed her foes, and taught them that even the expiring struggles of a giant were to be feared. Valentinian (q.v.), Gratian (q.v.), and Theodosius (q.v.), were rulers worthy of better times. The last-mentioned is even known to history as 'the Great.' But they fought against destiny, and their labor was in vain. Already swarms of ferocious Huns (q.v.) from the east had driven the Goths out of Dacia, where they had long been settled, and forced them to cross the Danube into the Roman territory, where the cruelty and oppression of the imperial officers goaded the refugees into insurrection; and in their fury they devastated the whole east from the Adriatic to the Euxine. Theodosius indeed subdued and even disarmed them; but he could not prevent them from drawing nearer to the heart of the empire, and already they are found scattered over all Mœsia, Servia, and northern Illyricum. Hardly was Theodosius dead when they rose again, under their chief, Alaric (q.v.), against Honorius, Emperor of the West. Rome was saved (for the moment) only by the splendid bravery and skill of Stilicho (q.v.), the imperial general; but after his assassination, the barbarians returned, sacked the city (410), and ravaged the peninsula. Three years earlier, hordes of Suevi, Burgundians, Alemanni, Vandals, and Alans burst into Gaul (where the native Celts had long been largely Romanized in language and habits), overran the whole, and then penetrated into Spain, where a Vandal empire was rapidly set up. It is utterly impossible (within our limits) to explain the chaotic imbroglio that followed in the West—the struggles between Visigoths and Vandals in Spain, between Romans and both, between usurpers of the purple



St. Peter's, Rome—Exterior.



St. Peter's, Rome—Interior.

and loyal generals in Gaul—the fatal rivalries of those otherwise noble and gifted men—Boniface, governor (*comes*) of Africa, and Ætius, governor of Gaul—which led to the invasion of Africa by Genseric (q.v.), and its devastation from the Straits of Gibraltar to Carthage (429). While this was the state of affairs in the West, that in the East was no better. There the Huns, from mere love of havoc, had reduced vast regions to an utter desert; for nearly 50 years, indeed, the little ferocious demons had rioted in destruction. At last, a trivial quarrel sent them into Gaul; but somewhere in Champagne, they were routed with great slaughter (451) by a combined force of Visigoths, Burgundians, Franks, and Roman mercenaries, under Ætius and Theodoric, King of the Goths; and in spite of their successful invasion of Italy in the following year, their strength was permanently broken, and thenceforth they bore an insignificant part in history. But Ætius, the only man who could have decently propped up the wretched ruin called the Western Empire, was assassinated by his contemptible sovereign Valentinian, whose own outrages led to his murder too; while his widow, Eudoxia, to be revenged on his murderer and successor, Petronius Maximus, invited Genseric, the ‘scourge of God,’ over from Africa, and exposed Rome to the horrors of pillage for 14 days. Ricimer (q.v.), a Sueve, next figures as a sort of governor of the city, and what relics of empire it still possessed; for Gaul, Britain, Spain, w. Africa, and the islands in the Mediterranean, all had been wrested from it. While Majorian—the last able emperor—lived, Ricimer’s position was a subordinate one, but, thenceforth, the western emperor was an emperor merely in name—a *roi fainéant*—while the real sovereignty was exercised by this Suevic *Maire du Palais*, who was succeeded in his functions by the Burgundian king Eunobald, and the latter again by Orestes, in whose time the final catastrophe happened, when Odoacer (q.v.), placing himself at the head of the barbarian mercenaries of the empire, overthrew the last, and the most ridiculous, occupant of the throne of the Cæsars (476), who, by a curious coincidence, bore the same name as the mythical founder of the city—Romulus.—See, besides the ancient histories of Polybius, Livy, Sallust, Tacitus, etc., the modern histories of Gibbon, Niebuhr, Arnold, Meivale, Duruy, Mommsen, and Ihne.

ROME: city, capital of ancient Italy; on the left bank of the Tiber, about 16 m. from the Mediterranean. The legend of its origin belongs to Roman history: see **ROME**—‘general term for the territory,’ etc. **ROMULUS**. It was built at first in the form of a square (*Roma Quadrata*), and gradually extended, until, in the reign of Servius Tullius, it embraced one after another the famous seven hills—the Palatine, Capitoline, Quirinal, Cælian, Aventine, Viminal, and Esquiline. Servius Tullius (according to the legend) so extended the *Pomærium* as to make the sacred inclosure of the city identical with its walls. After its first destruction, B.C. 390, by the Gauls, it was hastily rebuilt without respect to order, and with narrow irregular streets. At the

close of the wars against Carthage, Macedonia, and Syria, public buildings and private houses of great architectural beauty were added; and under Augustus, similar improvements were made, while the mean and narrow streets were allowed to stand. In the reign of Nero, A.D. 64, two-thirds of the city were destroyed by fire, a catastrophe which furnished that emperor with the opportunity of gratifying his architectural predilections, in widening and straightening the streets, and in restricting the height of the houses, of which a certain part was built of fireproof stone from Gabii and Alba—which achievement has been made the basis of recent futile attempts to rehabilitate his reputation. Although it had long outgrown the limits prescribed by Servius Tullius, still the walls of that king marked the extent of Rome, properly so called, till the 3d c. after Christ. Under Aurelian, however, the need of fortifications led to the construction of new walls, which took in the city of Servius Tullius with all the suburbs, such as the Mons Janiculus on the right of the Tiber, and the Pincian on the left. These walls, begun 271, were completed by the next emperor, Probus, were 11 m. in circumference, and were afterward restored by Honorius, and partially rebuilt by Belisarius.

Extent and Population of Rome.—Under Servius Tullius, the walls were seven m. in circumference, but the space which they comprised was not entirely occupied by buildings. Under Aurelian, the new walls were 11 m. in circumference, and the city went on extending until it reached a circumference of 13 m. under Vespasian. The population at any given period cannot be exactly determined. According to the *Monumentum Ancyranum*, the *plebs urbana* under Augustus amounted to 320,000; with the addition of women, senators, and knights, the inhabitants must have numbered about 650,000; while the slaves, who cannot have been less numerous than the free population, must have given an aggregate of at least 1,300,000. Considering the enlargement of the city under Vespasian, we may safely consider its population as not less than two millions in his reign.

The Walls and Gates.—The first wall, that attributed to Romulus, embraced merely the Palatine, and was pierced by three gates. The larger wall of Servius Tullius does not appear to have been continuous, but only to have connected the seven hills by fortifications drawn across the narrow valleys intervening: according to Pliny, there were 37 gates in this wall. Subsequent to the walls of Servius were those of Aurelian, which, except the part beyond the Tiber, are the same as those which surround the modern city. They were divided by 14 gates. The Tiber was crossed by eight bridges.

In the interior of the city were several open spaces of ground paved with stones, which were used as places of business or as market-places, and were called *fora* (see FORUM). Besides these, there were other open spaces of much larger extent, which were grass-grown, and set with trees and works of art. Of these, called *campi*, and used

by the people in their exercises and amusements, the chief was the Campus Martius. Surrounding these fora and campi were the private and public buildings of Rome, which were arranged in streets and districts. The chief street was the celebrated Via Sacra, remains of which are still seen in the Forum of modern Rome.—Rome contained no fewer than 400 temples, the oldest being the temple of the Feretrian Jupiter, on the Capitoline, built, according to tradition, by Romulus, and restored by Augustus. The most famous in history, and the most magnificent in architecture, was the Capitolium, on the summit of the Capitoline (see CAPITOL). The only other temple requiring special mention was the Pantheon (q.v.), built by Agrippa B.C. 27: it is still standing.—For other striking features of the ancient city, see CIRCUS: AMPHITHEATRE. BATH: BASILICA.

Rome abounded in covered walks, supported by columns, and open on one side. These were known as *porticus*, and were frequented for recreation, or transaction of business. They were in many cases adorned with paintings and other works of art, and furnished with libraries.—More peculiar to ancient Rome, however, were the triumphal arches: see ARCH, TRIUMPHAL.—The great prison of R. was the Carcer Mamertinus, built by Ancus Martius on the slope of the Capitoline, which overhangs the Forum. Servius Tullius added to it a subterranean dungeon, 12 ft. underground, walled and arched over with masonry.—There were also the barracks (*castra*), such as the Castra Prætoria, built by Emperor Tiberius for the imperial guards; and the Castra Peregrina, where the foreign troops were quartered; the aqueducts (see AQUEDUCT); and the sewers (see CLOACA MAXIMA).

Rome abounded also in palaces (*palatia*). Of these, the Palatium, or imperial palace, fronting the Forum, was so enlarged by Augustus, that, from being the private house of Hortensius the orator, it became the imperial residence. Nero built two still more splendid palaces, one which covered the whole Palatine Hill and part of the Esquiline, and was burned down in the great fire; and one which replaced the other. Many of the private palaces also were on a magnificent scale.—On the hills around the city were laid out *horti*, or parks and gardens, adorned with handsome buildings and works of art.—The city was rich also in sepulchral monuments. See ROMAN ARCHITECTURE.—In addition to these imperial or private mausolea, columns were erected to the more illustrious of the Romans, e.g., the Columna Rostrata, in honor of the consul C. Duilius for his victory over the Carthaginian fleet; the Columna Trajani, in the Forum; and the Columna Antonini Pii, in the Campus Martius.—Obelisks (q.v.), mostly transported from Egypt, occupied prominent parts of the city. Since R. has again become the capital of Italy, extensive excavations among the ruins have been made on a systematic plan, and with interesting results.

ROME, the modern city, cap. of Italy, occupies the plain

on each side of the Tiber, and the slopes of the seven hills. Its geographical position at the Observatory of the Collegio Romano is lat. $41^{\circ} 53' 52''$ n., long. $12^{\circ} 28' 40''$ e.; its height above sea-level on the Tiber, under the Ælian Bridge, is 20 feet.

The city is built on marshy ground, and is divided by the Tiber into two very unequal parts, that on the left bank being Rome proper, and that on the right bank being the Leonine city, or Trastevere. Its walls, 12 m. in circuit, with 16 gates, of which four are built up, inclose a space of which little more than one-third is inhabited, the greater part to the s. of the Capitol being cultivated as gardens or vineyards. The site of the ancient Campus Martius constitutes the lower and most densely populated part of the town, in which all the trade is carried on. Its central part is crossed by the Corso, a street about one mile long, running from the Piazza del Popolo, or great northern entrance of the city, to the Palazzo di Venezia, at the foot of the Capitol. From the Piazza del Popolo—a handsome open space, with an obelisk from the Temple of the Sun at Heliopolis in the middle—branch out, to the right and left of the Corso, the Piazza di Spagna, favorite quarter of foreigners, and the Ripetta. More than half-way up the Corso, and to the right, runs the wide street or Strada del Gesù, leading to the noble church and convent of that name, chief residence of the order of the Jesuits. On either side of the Corso, the buildings are regular and substantial, and consist of palaces, such as the Borghese, the Ruspoli, the Ghigi, and others, besides many churches. Between the Corso and the Tiber, to the w., the streets are irregular, densely peopled with inferior tradesmen, and consisting mainly of market-places, shops, and dwellings of a low class. In this quarter is the University La Sapienza, between which and the Corso is the Rotunda or Pantheon. South of Ponte Sisto, on the left bank of the Tiber, and winding round the w. base of the Capitol to the foot of the Palatine, is the Ghetto, or Jews' Quarter, consisting of narrow dirty alleys, with rows of high old houses. Still further s., and on the left bank of the Tiber, runs a series of narrow streets as far as the Palatine, containing some of the oldest churches in Rome—e.g., Santa Maria in Cosmedin, built in the 3d c. Beyond this extend s. e. the Aventine, Palatine, and Cælian hills, covered with gardens, vineyards, and orchards, besides churches, convents, and ruins. At the e. extremity of the Cælian stands the magnificent Basilica of San Giovanni in Laterano. South of the Aventine, and between it, the river, and the walls, are the Prati del Popolo Romano, forming part of a large low-lying cultivated tract. Near the Prati is the Protestant Cemetery.

On the slope of the Pincian and Quirinal hills, and covering part of the plateau which joins all the e. hills of Rome, lies the upper town, consisting mainly of palaces, villas, churches, convents, and other buildings on a large scale. It abounds with ample courts and gardens, and is crossed by two long streets, which intersect each other at right

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angles on the crest of the Quirinal. The Pincian is laid out in fine walks, the favorite promenade of the Romans; while between the Pincian and the Quirinal stands the great Barberini Palace. On the summit of the Quirinal is the famous pontifical palace and garden; and in the square before the palace are the two colossal statues of Castor and Pollux, with their horses, whence the hill receives its other name of Monte Cavallo. On the Esquiline, which here joins the Quirinal, and forms the e. extremity of the city, stands the magnificent church of Sta. Maria Maggiore; beyond it to the n., e., and s., the Esquiline is entirely covered with gardens, villas, and fields, with here and there a church. The principal buildings on the Capitol are three palaces, the work of Michael Angelo, which form three sides of a square, in the centre of which stands the equestrian statue of M. Aurelius Antoninus. One of the palaces is the Capitoline Museum, one of the finest collections of statuary and sculpture in Italy.

The third great division of the modern city lies on the right bank of the river, and is sub-divided into two parts—the Vatican (otherwise called Il Borgo) and the Trastevere. Divided from the latter by an inner wall, the Borgo or Leonine city occupies the space between the bridge of San Angelo and the Piazza of St. Peter's. Its chief buildings are the palace of the Vatican (q.v.) and the Basilica of St. Peter's (q.v.). Besides the Vatican and St. Peter's, the Leonine city contains the great hospital of the Santo Spirito, which accommodates annually 13,500 patients, suffering under diseases mental or bodily. The castle of San Angelo, with massive circular tower, called from its founder the 'Mole of Hadrian,' is surrounded with ramparts, ditches, and bastions, mounted with cannon, and forms the citadel of Rome.

To the south of the Borgo, and between the Janiculum and the Tiber, is the Trastevere, properly so called. The Janiculum, a straight ridge, about a mile and a half long from n. to s., rises about 300 ft. above the river. The northern half of its length is occupied by the long street called the Lungara, running closely parallel to the Tiber, which, at the s. extremity of the Lungara, makes a bend to the e., and bounds the greater part of the Trastevere district. On the Janiculum is the Villa Spada, near the gate, outside of which is the Villa Pamfili, favorite promenade of the Roman youth. On the same hill, the fountain called L'Aqua Paola, the largest in Rome, occupies a commanding site, and, as seen from a distance, resembles a triple triumphal arch, through which streams of water rush.

The churches, of which there are more than 300, form a notable feature in the city, from their architecture, their paintings, and other decorations. So also are the palaces of the aristocracy, often of great magnitude, with vast courts and spacious apartments. Of even better style as residences are the villas, within and without the walls; while the handsome fountains, of which there are at least 12 principal ones, impart a cheerful and refreshing aspect

ROME.

to the city. There are three modern aqueducts, which keep the city supplied with abundance of water: the Aqua Vergine, the Aqua Felice (anc. Aqua Marcia and Claudia), and the Aqua Paola (anc. Alsietina).

Rome is, on the whole, a healthful city, except at the close of summer and the beginning of autumn, when the malaria is prevalent, and fevers are often fatal, especially to strangers. The Trastevere is its most uniformly healthful district, the inhabitants of which are superior in physical development to those of the other parts. The neighborhoods of the Pincian and the Quirinal, particularly the former, are most frequented by Englishmen. The trade of the city is insignificant, consisting of a few small manufactures of hats, silk scarfs, gloves, artificial feathers, false pearls, mosaic trinkets, etc., and of such articles as artists need and visitors fancy. The only great manufacture, if it can be called so, is that of pictures, original and copied; for the painting of these, Rome offers not only the advantage of numerous galleries of art, but also purity of sky. The worst feature of R. is its dirtiness.

1870, Oct., Rome, with the rest of the papal territory, was annexed to the kingdom of Italy, and is now the capital. The pope retains the rights of a sovereign within the Vatican.—Pop. (1871) 229,356; (1881) 273,268; [*commune* (1881) 300,467]; (1891) 436,000; (1901) 462,783.

ROME: city, cap. of Floyd co., Ga.; on the Coosa river, here formed by the Etowah and Oostenaula rivers, and on the East Tennessee, the Virginia and Georgia, the Rome and Carrollton, the Rome and Decatur, and the Rome and Northeastern railroads; 65 m. n.w. of Atlanta. The city has a picturesque location, numerous public parks, fine driving-roads, good drainage, excellent water-supply, and large grain, grass, lumber, and cotton trade. The Etowah is spanned by two iron bridges, the Oostenaula by an iron drawbridge; both are here navigable. There are three public grammar schools, one high school, with five grades, Shorter College for women (cost and endowment \$170,000), Rome Female College (founded 1845), Y. M. C. A. building, Young Men's Library, Gynecological Infirmary, 9 churches for white, and several for colored, people, opera-house, masonic temple, city hall, 1 national bank (cap. \$150,000), 1 private bank, and 1 daily and 3 weekly news-papers. Manufactures are numerous and varied; value of annual products about \$2,000,000. Pop. (1870) 2,748; (1880) 3,877; (1890) 6,950; (1900) 7,291.

ROME—ROMFORD.

ROME: city in Oneida co., N. Y.; at junction of the Mohawk and Black rivers, on the Erie canal, and on the New York Central and Hudson River, the New York Ontario and Western, and the Rome Watertown and Ogdensburg railroads; 15 m. n.w. of Utica, 110 m. w. of Albany. It is in a noted dairy region, 427 ft. above sea-level, is laid out with principal streets 100 ft. wide and road-beds 65 ft. wide, is ornamented with choice elm and maple trees, and is supplied with water from the Mohawk by a combined system of reservoir and direct pumping. The system of associated dairying, now usual in extensive cheese-making, originated here. The city contains 15 churches, public library, free acad., Central N. Y. Institution for Deaf Mutes, Y. M. C. A. building with reading-room, excellent public schools, 2 national banks (cap. \$200,000), 2 savings banks (surplus \$385,525), 1 private bank, and 1 daily, 2 semi-weekly, 2 weekly, 1 monthly, and 1 quarterly publications. Besides cheese, the manufactures include railroad and puddled iron, mercantile iron, locomotives, railroad rolling-stock, agricultural implements, knit goods, lumber, soap, and builders' woodwork. R. occupies the site of Fort Stanwix, built 1758, during the French war, at a cost of £60,000, and the scene of active movements during the revolutionary war. The locality was long known as the 'carrying place,' because, as it was the only strip of land that prevented a continuous water-communication between the Atlantic and the great lakes, merchandise had to be carried over it. The town was incorporated 1819, the city chartered 1870. Pop. (1870) 11,000; (1880) 12,194; (1890) 14,980; (1900) 15,343.

ROMEYN, *ro'mîn*, JOHN BRODHEAD, D.D.: 1777, Nov. 8—1825, Feb. 22; b. Marbletown, N. Y. He graduated from Columbia College 1795; studied theology; was pastor of a Dutch Reformed church at Rhinebeck, N. Y., 1799; of one at Schenectady 1800-04; and of a Presb. church at Albany 1804-08. In the latter year he became pastor of a church in Cedar street, New York, with which he remained till his death. He was prominent in founding the theol. seminary at Princeton, was a popular preacher, and declined numerous positions of honor. His Sermons, 2 vols., were pub. 1816.

ROMFORD, *rûm'fêrd*: old market-town, county of Essex, England; on the river Bourne, or Rom, 12 m. e.n.e. from London, on the Great Eastern railway. The annual horse-fair commences on Midsummer Day, and lasts three days. There are extensive breweries of the famous 'Romford ale.' Agricultural implements are largely manufactured. Pop. (1891) 8,408.

ROMILLY.

ROMILLY, *rōm'ill-ŷ*, Sir **SAMUEL**: English lawyer and law reformer: 1757, Mar. 1—1818, Nov. 2; descended from a family of French Protestants, who, after the revocation of the Edict of Nantes, emigrated to England. At the age of 16, R. was articled to one of the sworn clerks in chancery; but at 21 he determined to go to the bar, and entered himself at Gray's Inn. At first he made little progress; but applied himself to the study of criminal law; and in 1789, hopeful, like many other English liberals, of the happy effects of the French Revolution, he published a short pamphlet on the subject. In 1792 and 95 he declined a seat in parliament. In 1806 he was appointed solicitor-gen. in the Grenville administration. He unwillingly received the honor of knighthood; but the king having for 20 years previously knighted all his attorneys and solicitors-general on their appointment, would take no refusal. He was afterward returned for Queenborough, and 1807 for Wareham. He then gave his earnest efforts to ameliorate the barbarity of the criminal law, proposed abolition of the punishment of death in various cases of theft, and published a pamphlet *On the Criminal Law as It Relates to Capital Punishments*. His bills were, session after session, opposed by the government of the day, the judges, and many of the bishops, as dangerous innovations; but R. persevered, and lost no opportunity of protesting against the illogical as well as shocking frequency of capital punishments. The measures that he proposed for mitigating the severity of the criminal law were mostly carried by others; though he framed two or three acts of great importance. He was active in the anti-slavery agitation, and in opposing the suspension of the Habeas Corpus Act, the spy system, and the despotic acts of the government. In 1818 he was spontaneously chosen by the electors of Westminster as their representative. The death of his wife caused him a grief so intense that it preyed upon his mind—occurring after a period of his own prolonged mental exertion—and three days afterward he died by his own hand. He had at this time attained the foremost rank at the chancery bar, and his professional gains were said to average £14,000 a year. His death excited profound sympathy, and was considered a public calamity. His *Speeches in Parliament* have been published in two vols.; also his Autobiography, with a selection from his Correspondence, admirably edited by his sons, in 2 vols.—His second son, JOHN, Lord ROMILLY (d. 1874), educated at Trinity College, and called to the bar at Gray's Inn 1827, was made solicitor-gen. 1848, atty.gen. 1850, master of the rolls 1851, and baron 1866. As master of the rolls, he superintended the publication of public records throwing much light on English history.

ROMNEY—ROMULUS.

ROMNEY, *röm'nî*, **GEORGE**: painter: 1734, Dec. 15—1802, Nov. 5; b. England. He began learning the trade of cabinet-maker, but was so successful in drawing that he was allowed to study portrait-painting. In 1758 he established himself at York; went to London 4 years later, and soon secured a prize of 50 guineas for a painting of the *Death of Wolfe*; became remarkably successful in portrait-work; studied at Rome and other art centres; and returning to London, became one of the greatest painters of his time. On the weakening of his powers by age, he returned to his family, which he had left 37 years before, and had meanwhile neglected. His mind utterly failed, but he lived about three years. Ill-feeling toward his principal rival, Sir Joshua Reynolds, prevented him from ever exhibiting his works at the Royal Academy.

ROMORANTIN, *ro-mo-röng-täng'*: small town of France, dept. of Loir-et-Cher, 25 m. s.e. of Blois. At the siege of this town by the Black Prince 1356, artillery is said to have been first used. Various woolen fabrics are manufactured. Pop. (1881) 7,317.

ROMP, n. *römp* [another spelling of **RAMP**, which see: Ger. *rammeln*, to sport in an excited manner: Dut. *rammelen*, to rattle, to romp]: a young person of unrestrained spirits; a girl' noisy and boisterous in play: V. to play in a rude and boisterous manner. **ROMP'ING**, imp.: N. act of one who romps: ADJ. boisterously playful. **ROMPED**, pp. *römp't*. **ROMP'ISH**, a. *-ish*, given to boisterous play; inclined to romp. **ROMP'ISHLY**, ad. *-lî*. **ROMP'ISHNESS**, n. *-nès*, the quality of being rompish; disposition to rude sport; rudeness.



Rompu.

ROMPU, *röm'pû*, in Heraldry: term applied to a chevron when the upper part is taken off, and remains above it in the field.

ROMULUS, *röm'û-lûs*: mythical founder of the city of Rome; appearing in legend as the son of Mars. His name is only a lengthened form of Romus, and he is therefore to be regarded rather as a symbolical representation of the Roman people than as an actual individual, like Æolus, Dorus, and Ion, eponymous ancestors respectively of the Æolians, Dorians, and Ionians. But though the legend of R. cannot be accepted as history in its details or its outlines, it is nevertheless interesting as showing how, after the lapse of years, when Rome had become a place of importance, its inhabitants tried to conceive a probable origin for it. The usual form of the legend of R. is in outline as follows: At Alba Longa, in Latium, there had ruled for centuries a line of kings descended from the Trojan prince Æneas. One of the latest of these, at his death, left the kingdom to his eldest son, Numitor. A younger son, Amulius, dispossessed Numitor, murdered his only son, and compelled his only daughter, Silvia, to become a vestal virgin. But Silvia having become the mother of twins by the god Mars, his fears were aroused, and he placed the

ROMULUS.

babes in a trough, which he cast into the Anio, whence it was carried into the Tiber, then in flood, and overspreading its banks far and wide. The trough was stranded in the marshes at the foot of the Palatine, where Rome afterward stood; and the infants were suckled by a she-wolf which carried them into her den, near at hand; also a woodpecker brought them food. Faustulus, the king's shepherd, having at length seen this marvellous thing, took the infants home to his wife, Acca Larentia, and brought them up with his own children. Growing up, the two boys became chiefs of a warlike band of shepherds on the Palatine; and Remus, one of the twins, was taken prisoner in a strife with his grandfather Numitor's herdsmen. Numitor recognized him as the son of his daughter Silvia; and the twins avenged the family wrongs by slaying Amulius, and placing their grandfather on the throne. But R. and his brother removed from Alba Longa to their old abode on the banks of the Tiber, and resolved to build a city there. The Palatine was chosen (by augury) for the site, and R., yoking a bullock and a heifer to a plowshare, marked out the *pomerium*, or boundary, on which he proceeded to build a wall. Remus, despising the construction, scornfully leaped over it to show its inadequacy for protection against attack; whereupon R. slew him, but was immediately struck with remorse, and instituted the *Lemuria*, or festival for the souls of the departed. R. then erected a 'sanctuary' or refuge on the Capitoline for runaway slaves and homicides, and thus he soon increased the number of his followers; but as wives were much wanted, and the neighboring tribes refused to supply them, R. resorted to stratagem: this led to the celebrated *Rape of the Sabine Women*, which wholesale abduction of virgins led to a series of wars, in which R. was invariably victorious, until Titus Tatius, at the head of a large army of Sabines, drove him from the open fields, and forced him to take refuge in his city on the Palatine. R. had garrisoned the Capitoline also, but the treachery of Tarpeia, daughter of the lieutenant of the fort, placed it in the hands of his adversaries. Next day, in a fierce battle in the valley, Sabines and Romans fought till they were exhausted, when the Sabine women rushed in between their husbands and their fathers, and implored them to be reconciled. This was agreed to; and they resolved to unite and to form only one people—the followers of R. dwelling on the Palatine, those of Titus Tatius on the Capitoline and Quirinal. On the death of Titus Tatius, R. became sole sovereign. See **ROME**—'general term for the territory,' etc. The legend continues with the statement that, after a reign of 37 years, R. was miraculously removed from earth. While he was standing in the Campus Martius, reviewing his militia, the sun was eclipsed, and a dark storm swept over the plain and hills: when it had passed, the people looked round for their king, but he was gone: his father, Mars, had carried him into the sky in a chariot of fire. Afterward R. reappeared to Proculus Julius, and predicted a great future for the Roman people, whose guardian god, under the name of

ROMULUS-AUGUSTULUS—RONCIGLIONE.

Quirinus, he promised to be. The festival of the Quirinalia (Feb. 17) was instituted in his honor; but the nones of Quintilis (July 7) was the day on which he was believed to have departed from earth.

ROMULUS AUGUSTULUS: see ODOACER.

RONALDSHAY, *rôn'ald-shā*, NORTH AND SOUTH: two of the Orkney Islands (q.v.). *North R.*, at the n. extremity of the Orkneys, has $3\frac{1}{2}$ sq. m., partly under tillage, partly in pasture. Sea-birds in great variety frequent the coasts, and lobsters and cod are fished. Pop. (1881) 547. — *South R.*, washed on the south by the Pentland Firth, has an area of about $20\frac{1}{2}$ sq. m. St. Margaret's Hope, on the n. coast, is a safe and convenient harbor. The inhabitants subsist mostly by fishing for cod and herrings. Pop. (1881) 2,557.

RONCESVALLES, *rôn-sē-vâl'lēs*, Sp. *rôn-thēs-vâl'yēs*: one of the valleys in Navarre, on the s. side of the Pyrenees, about 20 m. n.n.e. of Pamplona; famous in song and story as the scene of a defeat of Charlemagne's army by a combined force of Arabs, Navarrese, and French Gascons 778. Charlemagne, allured by the promise of the feudal supremacy of Catalonia, opened a campaign in aid of the viceroy of that province, against the Mohammedans. With a powerful army he passed the Pyrenees, penetrated Navarre, took Pamplona, the capital, and levelled the walls of the city with the ground. Clearly this was not part of his programme as champion of the Christian religion in Spain; for Pamplona was the cap. of a Christian state, and it is even asserted that prior to 870 Moors had not been admitted within its walls. Pressing onward, Charlemagne subdued a great part of the country between the Pyrenees and the Ebro; but on his return northward, while threading the defiles of the mountains near R., his rear-guard was furiously assailed and annihilated by a mixed force, of which a body of Navarrese, enraged at the destruction of their capital, formed an important section. Eginhard, sec. of the emperor, tells us that the rear-guard, including many generals and chief nobles, was totally destroyed, and that the spoil of the campaign, with the whole baggage of the army, fell into the hands of the victors. In this action fell Roland, the famous Paladin, hero of a hundred romances (for the *legend*, see ROLAND, *LEGEND OF*).

RONCIGLIONE, *rôn-chēl-yō'nā*: city of central Italy, province of Rome, 12 m. s.s.e. of the city of Viterbo. It has an impressive cathedral, a Gothic castle, and several fine old palaces. Hats, cloth, and cotton goods are manufactured, and there are iron, brass, and copper works. In the neighborhood of the city are sepulchral vaults, hollowed out in the porous rock (*tuffo*), and several sulphureous springs. Pop. 6,084.

RONDA—RONGE.

RONDA, *rôn'dâ*, Sp. *rôn'thá*: picturesque Moorish town of Spain, modern province of Malaga, on the Guadiaro, 50 m. n.n.e. of Gibraltar, at considerable elevation above sea-level. Its climate is unusually salubrious, and the town is a favorite summer retreat. The great annual fair is in May, when the small but active horses of the town are sold to officers from Gibraltar; also, there is extensive sale of leather, saddlery, embroidered gaiters, garters, and mantuas. Pop. (1877) 19,181; (1887) 18,350.

RONDEAU, n. *rôn'dō* [F. *rondeau*, a rondeau—from *rond*, round (see **ROUND**)]: originally (with the French) a little poem of 13 lines, divided into three unequal strophes; the two or three first words of the first line serve as the burden, and recur after the 8th and 13th lines.—Thence, in *music*, the term (but properly in music *Rondo*) has come to denote a light air, consisting of three or more strains, the first terminating in the original key, and each of the others so constructed as to conduct the ear back to a repetition of the first strain. In a more general sense, the name rondo is also often applied to any light lively tune which ends with the first strain repeated.—The laws of the R. as a poem have varied so greatly that the term must be considered extremely elastic: in all its forms, however, the characteristic metrical feature lies in a peculiar use of the refrain. In recent years English poets have successfully essayed this form of poetry, notable among whom is Swinburne.—*Ron-del* is a somewhat similar form of poem.

RONDE BOSSE, n. *rôngd' bôs* [F.—from *rond*, round, spherical; *bosse*, a bunch, a swelling]: in *arch.*, a term applied to sculptured objects in their full forms, in contradistinction to those which are in *relief*, or attached more or less to a plane or ground.

RON'DEL: see **RONDEAU**.

RONDELET, *rôngd-lă'* or *rông-děh-lă'*, **WILLIAM**: French naturalist: 1507-66; b. Montpeilier. He became a medical practitioner in Montpellier, and prof. in the medical school; and was a zealous student of nat. history, particularly ichthyology. His *Histoire entière des Poissons* (Lyon 1558) was one of the first works which contributed much to that branch of science.

RON'DO [It.]: musical term: see **RONDEAU**.

RON'DOUT (N. Y.): see **KINGSTON** (N. Y.).

RONDURE, n. *rôn'dūr* [F. *rondeur*, roundness; *rond*, round (see **ROUND**)]: in *OE.*, a circle; a round.

RONE, n. *rôn* [Icel. *renna*, to flow: Sw. *rænna*, a rain-spout: Dan. *rende*, a canal]: in *Scot.* and *prov. Eng.*, a spout for carrying rain-water from the roof to the ground; a run of ice.

RONG, n. *rông*: OE. for **RUNG**, the round of a ladder: see **RUNG 2**.

RONG'E, **JOHANN**: see **GERMAN CATHOLICS**

RONION—RONSARD.

RONION, or **RONYON**, n. *rôn'yün* [F. *rogne*; OF. *roigne*, itch, scab, scurf—from L. *robigo* or *robiginem*, rust]: in *OE*, one much diseased with itch and scurf—applied in contempt to a woman; a drab: see also **ROYNISH**.

RONSARD, *rông-sâr'*, **PIERRE DE**: celebrated French poet, and reformer of French poetry; 'Prince of Poets,' as he was called in his time and country: 1524, Sep. 11—1585, Dec.; b. at the Château de la Poissonnière in Vendômois. At the age of nine, he was sent to the Collège de Navarre, but was soon removed; and entered the service of the Dauphin as page. Handsome, and excelling in all bodily accomplishments, he soon became a general favorite. When his master died (1536), he became attached to the household of the Duc d'Orléans, second son of the king; accompanied James V. of Scotland back to his kingdom, with his bride, Marguerite of France, 1538; and after nearly three years at the Scottish, and six months at the English court, he returned to France, and to the service of the duke. A little later, recovering from a serious illness, he found himself afflicted with deafness, which led him to resign the pursuits of arms for those of letters. With this view, he studied five years in the Collège de Coqueret, having previously acquired a knowledge of Latin and of several European languages. His own language, as a literary vehicle, was much considered by him. Familiar now with the masterpieces of Greece and Rome, he wished (true child of the Renaissance, as he was) to invest the national poetry with classic dignity and grace. Several of his fellow-students shared his opinions and enthusiasm; and 1549 one of these, Joachim du Bellay, published what may be called the first manifesto of the new school—which became known as the *Pléiade*, from its seven leading writers—the *Illustration de la Langue Française*. Doubtless some change in French literature was necessary, and R.'s movement was not without its benefits; but the most intelligent French critics now admit that it was too radical, too absolute: it broke abruptly with the national traditions and tendencies, and tended to fix that pseudo-classicism of style subsequently brought to disastrous perfection in the *splendida vitia* of Corneille and Racine. In 1550 R. himself appeared in the field with his *Amours* and *Quatre Livres d'Odes*, which called forth bitter, violent opposition, and equally unreasonable praise. Rabelais (q.v.) was conspicuous among the adversaries of the new school; but on the whole, the classic party had the best of the contest, as its efforts were in harmony with the general intellectual tendencies of the time. Besides, R. was a man to make powerful friends: Marguerite, sister of Henry II., granted him a pension; the illustrious Chancellor De l'Hôpital encouraged him; and both Henry II. and François II. covered him with honors and pensions. Such admiration produced in R. an extreme elation. In 1553 a new ed. of *Amours* was published; 1555 the first, and 1556 the second, vol. of his *Hymnes*; and 1560 an ed. of all his works to that time. During the religious wars that devastated France, R. made himself noted by violent attacks on the Huguenots. Twenty days after the massacre of St. Bar-

tholomew, he published *La Françiade*, an epic fragment of a work to comprise 24 books ; but after finishing 4, he discontinued his efforts in the epic-line. Yet such was the belief in his genius, that his attempt called forth new expressions of delight: Charles IX. gave R. the abbey of Croix-Val and Bellozane, and the priories of Saint-Cosme, of Evailles, etc. But afflicted with premature infirmities, he retired to the abbey of Croix-Val, where he spent most of his remaining years in lettered ease. Queen Elizabeth of England sent him a set of diamonds, and Mary Stuart, from her prison, a set of plate worth 2,000 crowns, with the inscription:

À Ronsard, l'Apollon de la Source des Muses.

The best ed. of his works is Blanchemain's (8 vols. Paris 1857-67). See also Sainte-Beuve's *Œuvres Choisies de R.* (Paris 1828).

ROOD, n. *rôd* [from Eng. Rod, which see: Dut. *roede*, a measure of ten feet in land-surveying]: measure of surface, the fourth part of an acre, and containing 40 square poles or perches. It is quite different from the rood used in estimating mason-work, called sometimes the *square rod*, which contains $16\frac{1}{2} \times 16\frac{1}{2}$ ft., or $272\frac{1}{4}$ sq. feet.

ROOD, n. *rôd* [AS. *rod*, the cross: Fris. *rode*, gallows, cross: Ger. *ruthe*, a rod]: a cross; an ancient instrument of punishment, consisting of one rod laid at right angles over another. Specially, it denotes the figure of Christ's cross, and generally of the crucifix. The word is applied also to the actual cross on which the Lord Jesus suffered, though, when used to signify the relics of the true cross, it is commonly found with the prefix Holy, from which Holyrood at Edinburgh derives its name; but in its usual signification it denotes the large crucifix placed at the entrance of the chancel in most mediæval churches. On either side of the cross were commonly placed figures of the Blessed Virgin and St. John, in allusion to John xix. 26. The manner of placing the rood differed in different churches; it stood usually on a gallery or over the screen at the entrance of the chancel, which was called the Rood-LOFT or Rood-screen. In England, after the Reformation, the rood was, as a rule, removed from all churches; but in a few country churches it still remains in more or less perfect form. A very perfect example of the rood is in the great church of Louvain. BY THE ROOD, by the cross, a form of words formerly used in swearing.

ROOF.

ROOF, n. *rîf* [AS. *hrof*; O. Dut. *roef*; Russ. *krov'*, a roof; Serv. *krovnat*, thatched]: top or cover of a house or other building; inner side of a vault or arch; interior upper part; a house or dwelling: V. to cover or furnish with a roof; to shelter. **ROOF'ING**, imp.: N. the materials of a roof. **ROOFED**, pp. *rôft*. **ROOFY**, a. *rôf'î*, having roofs. **ROOF'LESS**, n. *-lës*, having no house or home. **GABLE ROOF**, roof like an inverted V. **ROOF-TREE**, the beam in the angle of a roof: the roof: familiar term applied to one's home. **KING-POST ROOF**, roof which is tied to the tie-beam by a king-post or piece to prevent the beam bending. **HIP ROOF**, roof with a slant on all four sides. **M ROOF**, double roof, such as is seen covering factories in the form of an inverted W. **SHED ROOF**, roof with one slope, as in a lean-to shed. **ROOF OF THE MOUTH**, upper part of the mouth; the palate.—The *Roof*, in building, varies in every climate and every age. In warm countries, such as India, flat roofs, covered with cement, are almost invariably used. The frequent allusions in the Bible to the house-top show that the roofs of Palestine were flat in ancient times, as they are now. Those of Egypt and Assyria (q.v.) also were flat, composed of wooden beams covered with thick layers of earth, forming an impenetrable protection from the fierce heat of the sun. In countries where the climate is milder, and rain more abundant, roofs sloping from a central ridge are the usual form: the Greeks and Romans constructed their roofs thus. Those of Greece were, in important works, covered with marble slabs, carefully grooved together, effectually to protect the interior from rain. In the common buildings of Greece and Rome, roofing-tiles are used.

In the rainy climate n. of the Alps, and largely in n. Europe and N. America, roofs of much steeper pitch are employed, more readily to throw off rain and snow. The angle at the ridge is commonly a right angle; and roofs slated in the usual way should never be less than $\frac{1}{2}$ of the span (or width between supports) in height. When large slates are used, $\frac{1}{4}$ of the span in height will suffice.

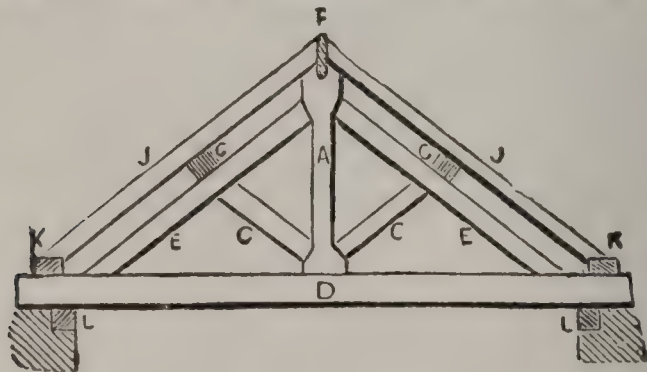


Fig. 1.

Roofs well constructed bind the walls together, and thus strengthen the building. To do this effectually, they must not be of too great weight, lest they crush the walls. The actual covering of the roof and its supports are therefore made as light as possible, and the strength is concentrated in principals or trusses. The following are the com-

ROOF.

monest forms of these trusses: fig. 1 represents a king-post roof (A being the king-post); fig. 2 a queen-post roof (B, B, being the queen-posts). The latter is used for wider

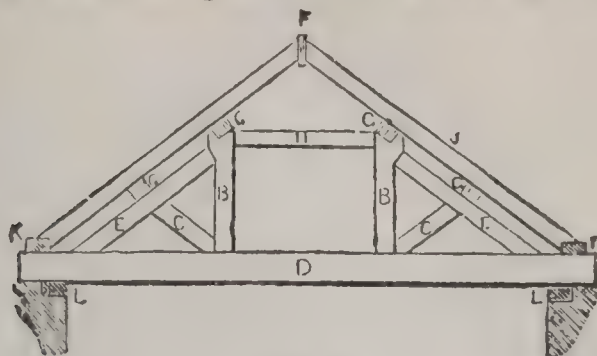


Fig. 2.

spans than the former, and has the advantage of leaving the centre of the roof clear of timbers, so that attic rooms may be introduced. The other members of the truss are named as follows: C, C, C, C, braces or struts; D, D, tie-beams; E, E, E, E, principal rafters; F, F, ridge-pieces; G, G, etc., purlins; these and the ridge-pieces are laid across from truss to truss, and carry the common rafters, J, J. H is a collar. K, K, the pole-plates, and L, L, the wall-plates, are laid along at the wall-head, to bind the wall and the feet of rafters together.

The above system of construction has been used from a

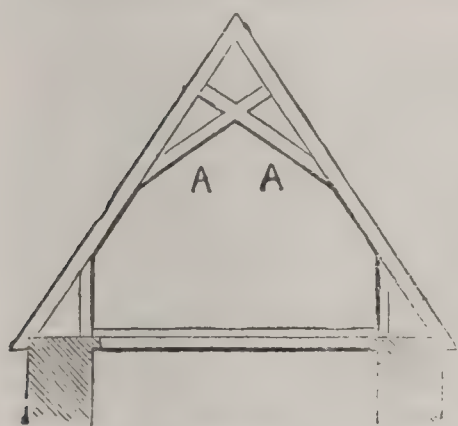


Fig. 3.

very early time to the present day. The early Christian, and probably the old Roman basilicas, had exactly such roofs. In early Gothic times, roofs of this kind were made ornamental by carving the king-post and molding the tie-beam. During the Decorated style, an arch, or a series of cants (A, A), was introduced, as shown in figs. 3, 4, and 5. As the style advanced, curved braces were placed under the tie-beam, to support it; these were carved, and rested on elegant corbels, the spandrels between the braces and the wall being filled with tracery. In the Perpendicular style, the central part of the tie-beam is cut away, and the beautiful Hammer-beam (q.v.) roofs of the period become usual (see fig. 6): the roof of Westminster Hall, London, is one of the finest examples. These open timber-roofs are used both in churches and in halls, but chiefly in halls, the church roofs being frequently vaulted: see VAULT: also DOME.

As the style advanced, curved braces were placed under the tie-beam, to support it; these were carved, and rested on

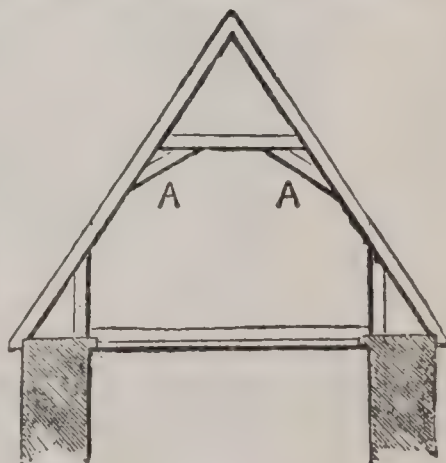


Fig. 4.

ROOF.

In modern times, when great spans have to be roofed over, combinations similar to those used in Lattice-bridges

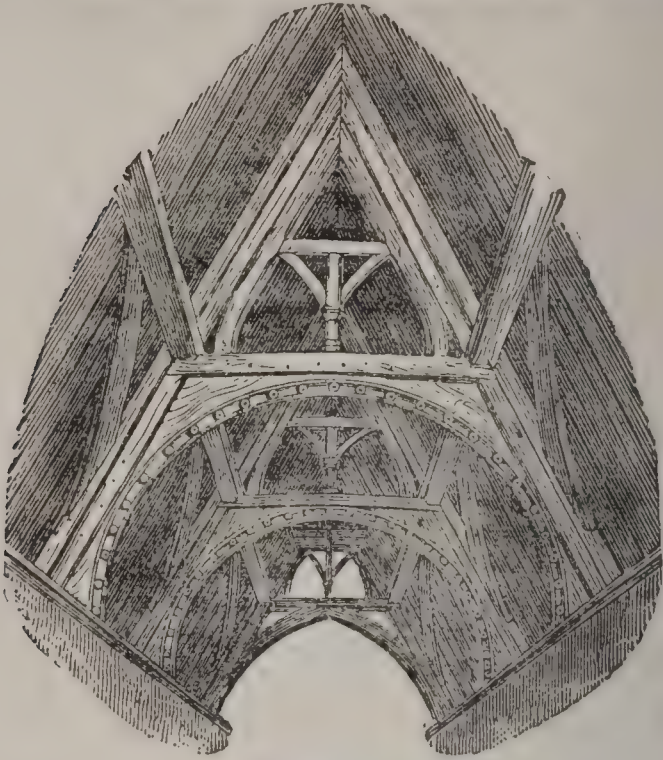


Fig. 5.



Fig. 6.

(q v.) are required. Recently, iron has been introduced, and, by means of it, spaces of great width can be roofed over.

ROOK, n. *rúk* [It. *rocco*; F. *roc*, the rook—from Pers. *rokh*, the tower in chess]: the castle in the game of chess.

ROOK, v.: for **RUCK** 2, which see.

ROOK, n. *rúk* [AS. *hroc*; Dan. *raage*; Sw. *roka*; Dut. *roek*, a rook: comp. Gael. *ròc*, to cry hoarsely; *ròcas*, a rook: L. *raucus*, hoarse]: bird of the crow family, having the base of the bill bare of feathers, and noted for its thievish propensities: a cheat; a sharper; a thief: V. to cheat. **ROOK'-ING**, imp. **ROOKED**, pp. *rúkt*. **ROOKERY**, n. *rúk'ér-ì*, a place where rooks congregate and build their nests: close assemblage of poor mean buildings inhabited by the lowest poor: a haunt of thieves, etc. **ROOKY**, a. *rúk'ì*, inhabited by rooks.—The *Rook* (*Corvus frugilegus*) is a species of Crow (q.v.) very common in s. parts of Britain, and found in many parts of Europe and Asia, even to Japan; about the same size with the common crow, but easily distinguished from it by the naked warty skin at the base of the bill, extending back rather beyond the eyes, and far down on the throat. Still more different are the habits of the birds, the common crow frequenting lonely situations; the R. choosing rather the neighborhood of human habitations. Moreover, while the common crow is solitary, the R. is gregarious; and very large companies often assemble in *rookeries*, making their nests in close proximity, generally in tall trees, the same tree often sustaining many nests. So far are they from disliking the companionship of man, that it is common for rooks to build their nests in trees that grow in the midst of great cities. A tree even in Cheapside, London, has been occupied by rooks' nests. Few cities or large towns in Britain are without rookeries, sometimes of considerable magnitude, one near Edinburgh having been computed to number 2,600 nests and 30,000 birds. The smoke seems disregarded by the birds. The R. is nowhere more abundant than in England and s. Scotland, but is rare in n. Scotland. Sometimes rooks make their nests in steeples, on vanes, etc., but rarely. They have been observed to avoid trees which are decaying and likely soon to be blown over—perhaps, however, on account of the state of their twigs—also trees that are marked on the trunk for cutting down. It is believed in some districts that they know Sunday, and are less timid of the approach of man on that day than on other days of the week. The nests of rooks are formed of twigs, lined with grass and fibrous roots; generally containing four or five eggs, of pale-greenish color, blotched with dark-greenish brown. During the nest-making time, rooks rob each other in a remarkable manner, and prodigious quarrels arise in rookeries on this account. Any pair attempting to found a separate colony on a tree far apart are apt to be assailed by the whole force of the rookery, and the nest pulled to pieces, its materials of course being carried off.

Farmers very often complain of them for rooting up grass and young corn, and for injury to young potatoes, turnips, etc.; but, on the other hand, it is urged that they are of great use by eating up wire-worms, cockchafer

grubs, and other insect larvæ, slugs, etc., and that the grass pulled by them is often that whose roots larvæ have already devoured. The truth appears to be that rooks in moderate numbers are very useful; but that it is possible to protect them too much.

The same rooks seem to take possession of their old nests year after year, repairing them, and not building new ones. The time of building and repairing nests, beginning in early spring, is one of prodigious clamor in the rookery. The male R. feeds the female assiduously during incubation, and sometimes takes her place on the nest. Both parents bring food to their young ones. The R. is capable of being tamed, and tame rooks have the imitative power of voice possessed by other birds of the same family. White, cream-colored, and pied rooks are occasionally seen: these peculiarities of plumage are due probably to disease.

ROOKE, *rôk*, Sir **GEORGE**: British admiral: 1650–1709, Jan. 24; b. near Canterbury. He entered the navy; was, at the age of 30, a post-capt.; and 1689 was promoted to rear-admiral. In 1692, in the memorable battle off Cape La Hogue, between the French fleet and the combined English and Dutch force under Admiral Russell, his services were most brilliant and dashing; and in acknowledgment he received the rank of vice-admiral of the red, the honor of knighthood, and a pension of £1,000 a year. His next important service was the destruction of a Spanish plate-fleet in the port of Vigo; and 1794, July, with Sir Cloudesley Shovel, he captured Gibraltar.

ROOM, *n. rôm* [AS. *rum*; Ger. *raum*; Goth. *rum*s; Gael. *rum*, space: Icel. *ryma*; Ger. *räumen*; Dut. *ruimen*, to clear a space, to make room]: space; place or space unoccupied; an apartment of a house; station; place of another; stead; scope; opportunity; possible admission or mode; latitude; compass. **ROOM'FUL**, *n. -fûl*, as many as a room will hold. **ROOM'Y**, *a. -î*, having ample room; spacious. **ROOM'ILY**, *ad. -lî*. **ROOM'INESS**, *n. -nès*, the state of being roomy; large extent of space; spaciousness. **TO GIVE ROOM**, to withdraw, to allow others to pass or be seated. **TO MAKE ROOM**, to open a space, way, or passage.

ROORBACH, *n. rôr'bâk* [from a fictitious extract from *Roorbach's Tour*, 1836, published for political purposes by an Amer. paper 1844]: falsehood; mis-statement; sensational article without any foundation, published, especially for political purposes, in a newspaper.

ROOSEVELT, *rôs'vèlt*, **ROBERT BARNWELL**: born New York, 1829, Aug. 7. He studied law, began practice 1850, secured the establishment of the State Fishery Commission of N. Y. 1867, and was one of its members for 21 years, was active in the overthrow of the Tweed ring in New York, was elected to congress as a democrat 1870, and appointed U. S. minister to the Netherlands 1888. He is a member of the Amer. Association for Advancement of Science. Among other works, he has published *The Game Fish of North America* (1860); *The Game Birds of the North* (1866); and *Five Acres Too Much* (1869).

pines." He brought about a settlement of the anthracite coal strike in Pennsylvania in 1902 through a commission suggested and appointed by him. In 1903 he declined to serve as arbitrator between foreign powers and Venezuela; caused a thorough investigation of the frauds in the post-office department; in a special message (Feb. 27) urged the passage of the Philippine tariff bill, and in another (June 13) the passage of the Cuban reciprocity bill. Following the publication of the details of the massacre of Jews at Kishineff, Russia, in May, a petition to the Czar was prepared by representative Jews of the United States, and this the president decided to forward. It having been learned, however, that the paper would not be received, it was filed among the archives of the State Department. President Roosevelt has been made a doctor of laws by Columbia, Harvard, and Yale Universities. He is the author of *Lives of Thomas H. Benton* (1886) and *Gouverneur Morris* (1887); *Naval War of 1812* (1882); *The Winning of the West* (1899); *Oliver Cromwell* (1900); *Essays in Practical Politics* (1888); *American Ideals* (1897); *The Strenuous Life* (1900); *Hunting Trips of a Ranchman* (1885); *Ranch Life and the Hunting Trail* (1888); *The Wilderness Hunter* (1893), etc. He collaborated with Henry Cabot Lodge in *Hero Tales from American History*, and aided William L. Clowes in preparing *The Royal Navy*.

ROOST, n. *rôst* [AS. *hrost*; O. Dut. *roest*, the seat or perch of a bird, so called from the *rod* or perch]: the pole or perch on which a bird settles itself to rest: V. to sit or sleep on the branch of a tree, or on any other thing, as a bird at night. **Roost'ing**, imp. **Roost'ed**, pp. **Roost'er**, n. *-ér*, a cock. **At roost**, in a state of rest or sleep.

ROOT, n. *rôt* [Icel. *rôt*, a root; *róta*, to grub up: AS. *wrotan*; Dut. *wroeten*; Dan. *rode*, to root, as a pig or a mole: Norw. *rota*, to dig, to dabble]: that part of a plant which enters into and (in most cases) fixes itself in the earth or other source of nutriment, and through which the plant is nourished (see **Root**, in Botany): a plant whose root is esculent; the part of anything resembling a root in manner of growth; the lower part of a thing: the original or cause of anything; first ancestor; impression; durable effect: in a *language*, that element which serves as a common basis to one or more words, the root being contained in the language itself, or in its older forms derived from a foreign language (see **Root**, in Philology): in *alg.*, the value of an unknown quantity in an equation (see **Root**, in Algebra): in *arith.*, any number which multiplied by itself produces a square or other power—that *number* is the *root* of the square or power: V. to plant or fix in the earth; to

ROOSEVELT.

ROOSEVELT, THEODORE, LL.D.: twenty-sixth president of the United States; b. New York City, 1858, Oct. 27. He is descended from one of the early Dutch settlers of Manhattan Island. His paternal grandfather was a wealthy merchant. His father, Theodore Roosevelt, a banker, was distinguished as a philanthropist. One of his uncles, Robert Barnwell Roosevelt, was prominent as a member of Congress and as a leader of "reform politics" in New York; was minister to the Netherlands; and was an enthusiastic sportsman. Others of the name distinguished themselves, and Roosevelt Hospital in New York stands as a memorial of the philanthropic spirit that has ever distinguished the family. One of his maternal uncles served in the Confederate navy and fired the last shot from the ill-fated *Alabama*, sunk by the guns of the *Kearsarge* off Cherbourg. His mother was descended from Archibald Bulloch, member of the continental congress, and the first Republican governor of Georgia. Theodore Roosevelt was sickly in his youth, but by systematic training and out-of-door life built up a rugged constitution. He was prepared for college in private schools; graduated from Harvard 1880; traveled in Europe and did some mountain climbing, and on his return began the study of law, but gave it up for politics; joined the Republican association of the 21st district, and in the fall of 1881 was elected to the state assembly. In 1883 he was re-elected, became the leader of the minority and was largely instrumental in carrying through the state civil service law and an act for the regulation of primary elections. In 1884 he was made chairman of the committee on cities; proposed an investigation of the government of New York; and carried through several reform measures, one of which made the mayor responsible for the administration of municipal affairs. In the same year he was chairman of the New York delegation to the national Republican convention, where he advocated Edmunds as a presidential candidate, but finally supported Blaine. On retiring from the legislature he bought a ranch in North Dakota, and for a number of years he spent his summers in hunting in the far West. For four years (1884-88) he was a member of the 8th regiment N. Y. N. G., becoming captain. In 1886 he was an unsuccessful candidate for mayor of New York, Henry George (Labor) and Abram S. Hewitt (Dem.) being his opponents, and the last named winning. For six years (1889-95) he was a member of the United States Civil Service Commission, and for two (1895-97) president of the Board of Police Commissioners, New York City, resigning to become assistant secretary of the navy. It was due to his foresight and management that the navy was in such admirable condition at the outbreak of the war with Spain. After war was declared he resigned his

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portfolio, and with Dr. Leonard Wood, of the regular army, organized a regiment officially designated the 1st U. S. Volunteer Cavalry, but popularly known as "Roosevelt's Rough Riders," of which Wood became colonel, with Roosevelt second in command. It comprised men of all nationalities; college graduates, many of them noted athletes, ex-policemen, cowboys, frontier hunters, Indians, and New York club men, and it led the first fight at Siboney or Las Guasimas, 1898, June 24, and distinguished itself in the fighting at Santiago (July 1-3). On July 8 Col. Wood was promoted brigadier-general and Lieutenant-colonel Roosevelt colonel. After the surrender he wrote a letter to General Shafter urging the immediate removal North of the troops, and later signed a "round robin" to the Secretary of War insisting that the army must be moved at once or perish. Upon his return to New York he was nominated for governor against the wishes of the "machine" Republicans and was elected, his plurality over Augustus Van Wyck (Dem.) being 17,786. As governor he reformed the administration of the canals, provided civil service reform, and established the principle of street-franchise taxation. He desired to serve a second term, but the Republican leaders of the State joined with western delegates in forcing upon him the vice-presidency (1900, June 21). Previous to the election he made an extended tour of the Western states. He received 292 electoral votes to Adlia E. Stevenson's 155, and in 1901, March 4, assumed official duties. Upon the death of Pres. McKinley, Sept. 14, Vice-President Roosevelt took the oath as president, pledging himself to carry out the policy of his predecessor. In his first message to congress (Dec. 3) he urged publicity as a remedy for the evils of trusts; advised the supervision and regulation by the nation of corporations doing an interstate business, and if congress lacked the constitutional power to pass such an act, the submission of a constitutional amendment to that end. On 1902, Feb. 18, he replied to the appeal of Admiral Schley; censuring that officer, and declaring that on the whole the court did substantial justice. In a special message to congress June 13, he urged the passage of a Cuban reciprocity bill. The president made an extended tour of the United States in the summer and fall, being received with enthusiasm everywhere. In his annual message (Dec. 2) he urged the need of keeping the army at the highest point of efficiency and of building up the navy; observed: "No independent nation in America need have the slightest fear of aggression from the United States," and asserted, "no policy ever entered into by the American people has vindicated itself in more signal manner than the policy of holding the Philip-

ROOT.

enter the earth; to take root; to impress deeply; to tear up from the ground; to tear up the earth with the snout, as swine; to extirpate, with *up*. ROOT'ING, imp. taking root; turning up the earth with the snout, as swine. ROOT'ED, pp.: ADJ. fixed and grown by roots; deep; radical. ROOT'EDLY, ad. *-lī*, in a rooted manner; strongly. ROOT'EDNESS, n. *-ēd-nēs*, the state or condition of being rooted. ROOT'Y, a. *-ī*, full of roots. ROOT'INESS, n. *-ī-nēs*, the state of being full of roots. ROOT'LESS, a. *-lēś*, without a root. ROOT'LET, n. *-lēt*, a little root; a radicle. ROOT-LEAF, in *bot.*, a leaf growing immediately from the root. ROOT-STOCK, or RHIZOME (*Rhizoma*), in *bot.*, a stem prostrate along the ground, partially covered with soil; sending out roots from its lower side, and leaf-buds from its upper. The common yellow iris affords a perfect example of it. Many ferns have root-stocks. The root-stock, often regarded as a creeping root, is really not a root, but a stem. ROOT-CROP, a crop of esculent roots, as the potato or turnip, etc. TO TAKE ROOT, to become planted or fixed; to increase and spread. TO TEAR UP BY THE ROOT, to eradicate.

ROOT, in Algebra: any value of the unknown quantity in an equation, which will render both sides of it identical: see EQUATION: INDETERMINATE PROBLEMS: IRREDUCIBLE CASE: ETC. The determination of the roots of equations, either formally or actually, constitutes the greater portion of the science of algebra, while the approximation to roots of those equations whose degree is still beyond a general solution (4th and upward) forms almost a separate branch of itself. Roots are divided into various classes; they are *real* when they consist of numerical quantities positive or negative; and *imaginary* when they assume the form $a + b\sqrt{-1}$.

ROOT, in Botany; sometimes designated as the *descending axis* of a plant: that part by which a plant enters for sustenance into its original nutrient medium, and by which in most cases it is anchored in the soil. The root is developed in the germination of the seed, at or about the same time with the stem, and forces its way downward as the stem grows upward. The root differs from the stem in the irregularity of its ramifications, in the lack of a central pith, of buds, of scales, or of scars to indicate their former presence, and in the lack of stomata. The axis of the root giving off branches, these finally sub-divide into *fibrils*, which are little bundles of annular ducts, or sometimes of spiral vessels, incased in woody fibre, and covered with a lax cellular integument. The apex of each fibril is called sometimes the *spongiole*: it consists of extremely lax cellular tissue, and has the property of absorbing fluids with great rapidity, thus subserving the nourishment of the plant: see ENDOSMOSE.—Aerial roots occur in some plants, as in some *Epiphytes*, the Banyan, Mangroves, etc.; by which nourishment is derived from the air, in addition to that obtained through the leaves and bark, or by which the branches seek to connect themselves anew with the ground, for support and nourishment; and many plants,

ROOT.

as Willows, produce adventitious roots very readily, when any portion of the stem or branch is embedded in moist soil, of which advantage is taken for their artificial propagation.—The central axis of many roots goes deep into the ground in a tapering manner, forming what is called a *tap-root*; other roots have the descending axis very short, and are called *fibrous*. The roots of some plants spread very widely; those of others occupy a very limited space. The roots of coniferous trees and palms are very small when compared with the appearance of the tree above ground.—Tap roots sometimes assume a conical form, as in the carrot; others are variously developed in thickness at the upper part, as in the turnip and radish. TUBERS (q.v.), BULBS (q.v.), and CORMS (q.v.) are peculiar developments, evidently intended to secure a store of nourishment for the plant, but which also are available for the use of man.—Esculent roots are numerous, and many roots also contain secretions either peculiar to themselves, or more abundant than in the other parts of the plant, and become therefore useful in medicine or in the arts; while some are very poisonous. The roots used for food, besides the tubers, bulbs, and corms above mentioned, are generally those which are thick and fleshy. The plants to which they belong are of very different genera and orders—some of nat. order *Cruciferae*, e.g., Turnip and others of the genus *Brassica*—some of order *Chenopodiaceae*, e.g., Beet and Mangel-wurzel—some of order *Umbelliferae*, e.g., Carrot, Parsnip, etc.—some of order *Leguminosae*, e.g., *Pachyrhizos angulatus*, cultivated in all parts of the E. Indies, and *P. trilobus*, cultivated in Cochin China. In many of the lower classes of plants, particularly the Algæ, there is no root whatever, though often the plant is attached by a base.

ROOT, in Philology: that part in a word which is common to a group of allied words—the germ out of which they all have sprung. It is arrived at by taking away the formative parts—the suffixes and affixes—and reversing any change that their presence may have caused. Thus, in *co-in-cid-ence*, the root-syllable is *cid*, the primary form of which in Lat. is *cad*, to fall. It is seldom that this analysis can be successfully performed with only one language; in order to get at the true root, the corresponding words in all the languages of the same family must be compared. Thus, in the English words *story*, *history*, *historical*, *historically*—*histor* would seem to be the root; but by comparing the Greek with the Lat. and Skr., we arrive at the real root, a syllable *vid*, meaning to see or know, of which the Eng. (to) *wit* (wist) is only another form. And even after such a process, we are not sure that we have arrived at the original and most simple form. Thus, Eng. *yoke*, Lat. *jugum*, come from the syllable *jug*, to join, seen in Lat. *ju(n)go*, Gr. *zeugo*; and this might be rested in as the root, were there not a simpler form, *ju*, preserved in Skr., and having the meaning of mingling or being together; this, which may be taken as the primary root, gives rise to the two secondary roots or modifications, *jug*, to join, and *yudh*, to fight (i.e., to join battle).

ROOT.

The roots of the Aryan languages are always monosyllabic, as *i*, to go; *ga*, to go; *ad*, to eat; *vak*, to speak; *star*, to strew. They are divisible into two classes, one expressing some action or general property, as in the instances now given; the other indicating relative position, as *ma*, here or me; *ta*, there or that. The one class are called *predicative* roots; the other, *pronominal* (see PRONOUN: PREPOSITION). They all expressed primarily some physical notion or relation palpable to the senses; but from these the transition to the impalpable conceptions of the mind is natural and obvious; thus, *vid*, to see, served also for to know. The notion expressed by a root-word is always very general; but by a variety of expedients, e.g., lengthening the vowel, reduplication of the syllable, prefixing and affixing letters and syllables (many of which at least are evidently pronominal roots), and composition with other predicative roots, one germ gives rise to a whole group of words expressive of the specific applications of the generic idea. Thus, from the root *spac* or *spec* (in Gr. *skep*), to look, have sprung a numerous family of words in the English and kindred tongues—*spy*, *despise* (to look down upon), *spite* (through Fr. *despit*), *respite*, *respectable*, *suspicion*, *prospect*, *inspect*, *auspices*, *speculum*, *species* (i.e., the appearance or individual form, as opposed to the kind or genus), *spices*, etc.

Roots, in the Aryan languages, never enter into speech in their pure and simple form; to make them words, they almost always take on the addition of a pronominal element. Thus, the reduplicate root *da-da*, having the sense of giving, becomes, by the addition of *mi*, my, the word *da-dā-mi*, I give; *vak*, to speak, by affixing *s* (for *sa*, that), becomes *vaks*, in Lat. *vox* (*voks*), voice (i.e., that speaking). See INFLECTION; Philology; Onomatopœia.

ROOT, ELIHU: lawyer: born Clinton, N. Y., 1845, Feb. 15, son of Prof. Oren Root of Hamilton College. He graduated from Hamilton 1864, taught at Rome Acad., graduated from the law school of the university of N. Y. 1867, and practiced in New York City. He was United States attorney for the southern district of New York 1883-85; was delegate at large to the State Constitutional Convention 1894, and chairman of the judiciary com.; was appointed Secretary of War by Pres. McKinley 1899, Aug. 1, appointed 1901 Mar. 5; resigned 1903, Aug.

ROOT, *rót*, GEORGE FREDERICK, MUS. DOC.: born Sheffield, Mass., 1820, Aug. 30. When only 17 years of age he became a teacher of music in Boston, removed to N. Y. 1844, studied in Paris 1850, and afterward removed to Chicago. He wrote largely for the musical press, published various instruction-books, cantatas, collections for church choirs, and works on teaching; and numerous popular songs, including *Rosalie*, *the Prairie Flower*; *Tramp, Tramp, Tramp*, *the Boys are Marching*; and *There's Music in the Air*. He died 1895, Aug. 6.

ROOT-MIL'DEW: term designating no well-determined species of fungus, but certain *mycelia*, which infest the roots of peaches, apples, roses, currants, etc., and cause their death. The tree or shrub is often suddenly blighted, from apparently perfect health. The roots are found more or less decayed, and covered with filmy white threads. The *mycelium* is supposed to belong to species of *Polyporus*. In some plants, as roses, the state of the bark just above the soil is believed to be premonitory of the disease, which may perhaps then be arrested by washing with a solution of corrosive sublimate. But the *mycelium* is not easily destroyed, and a tree of the same kind should not be planted where it has proved fatal.

ROOT-PAR'ASITES: plants which grow upon, and derive their nourishment from, the roots of other plants: such are the Broom-rapes (*Orobanchæ*, q.v.), species of *Thesium*, etc., and the *Rafflesias* (q.v.), with other *Rhizanthæ* (q.v.).

ROPAL'IC, a. [Gr. *rhopalon*, a club]: club-formed.

ROPE, n. *rōp* [Icel. *reip*, a rope: Dut. *reep* or *roop*, a cord or rope: A.S. *ráp*, a rope]: cord or line composed of several strands twisted together; small cable (see below): a row of things depending, as of onions: V. to draw out or extend into a string or thread by means of a glutinous or adhesive quality; to draw in by trick or to inveigle into a thievish or fraudulent operation. **Ro'PING**, imp.: N. the state or quality of being glutinous and adhesive. **ROPED**, pp. *rōpt*. **ROPY**, a. *rōpī*, stringy; adhesive. **Ro'PINESS**, n. *-nēs*, aptness to draw out into strings or threads without breaking; the partial viscosity and roping of syrupy liquors. **Ro'PERY**, n. *-pēr-ī*, a place where ropes are made; in *OE.*, rogues' tricks. **Ro'PISH**, a. *-pīsh*, tending to ropiness. **Ro'PER**, n. *-pēr*, a ropemaker. **ROPE-DANCER**, one who walks and performs feats on an extended rope. **ROPE-LADDER**, a ladder made of ropes, hung over a ship's side, or otherwise used, as being easily portable. **ROPEMAKER**, one who makes ropes. **ROPEMAKING**, n. the making of ropes. **ROPEWALK**, a long covered walk where ropes are extended as they are spun. **ROPE-YARN**, yarn consisting of single threads for making ropes. **ROPE OF SAND**, a band easily broken; anything without force, as a tie or bond of union. **ROPE-TRICK**, in *OE.*, a trick or deed which deserves the rope or halter.—*Rope*, generally any cordage having circumference of an inch or more, is made usually of vegetable fibres, though in recent years wire-rope has come into extensive use. The fibre most used for rope is hemp; but large quantities of plantain fibre, called Manilla-hemp, made from the leaf-stalks of *Musa textilis*, also are employed, especially for large ropes on ships. Ropes consist of many thicknesses of yarn, which is spun by hand in places called ropewalks. The spinner has a large bundle of the fibre loosely gathered round his waist, from which he pulls out a few fibres, and attaches them to a hook in the turning wheel or whirl, which is stationary, and is worked by an assistant. Experience teaches him what number of fibres to draw out, and how to twist them so as

to hold firmly on to the hook. He then walks slowly backward down the rope-ground, gradually drawing out or regulating the pulling out of the fibres so as to make an equal yarn, which receives the necessary twist from the whirl. When he has reached the end of the walk, another spinner takes the yarn from the hook of the whirl, and fixes it to a reel, which is then set in motion; and he attaches a second portion of hemp from his own supply to the hook, and proceeds down the walk as the previous one had done. In the mean time, the first spinner gradually walks up the ground, carefully guiding his length of yarn as it is wound on the reel. When he reaches the reel, it stops, and he waits until the second spinner's length is completed. He then in his turn takes it off the hook, and twists it on to his own; and the reel, being again started, receives the additional length from the second man, and so on until the full length required is made up. The next operation is called *warping*, and consists in stretching out the number of yarns required for a rope. These all are slightly twisted again separately, and stretched to an equal length. Then, if they are intended for tarred ropes, each yarn is drawn separately, either lengthwise or in a hank, through a kettle of hot tar. The superfluous tar is removed by drawing it through a hole lined with oakum. In the next process, called *laying*, two or more yarns are attached to hooks on a whirl, so that when it is turned they will be twisted together the contrary way of the original twist that they received in the first spinning. When this is done, it is called a strand. Then as many of these strands as are required for the rope are stretched at full length, and are attached at each end to whirls. One of the whirls has but one hook, to which all the strands are attached; the other has as many hooks as there are strands, one always being central, and a strand is attached to each. The whirls are then put in motion, but in opposite directions, and this causes the outer strands to be laid with great regularity and firmness around the central one. Such is the ordinary process of ropemaking; but machines have been invented which produce ropes with such mathematical precision that the strength of the rope may be calculated with great exactness. In some cases there are three 'preparation-machines,' the first of which is a heckling-machine; and the spinning-machine also coils the spun rope on large bobbins. The yarn is usually spun with a right-handed twist. Yarns are then combined to make a left-handed strand; and three or more strands are joined to make a right-handed rope. A rope of three strands is stronger than a corresponding one of four strands, as in the latter the strand in the centre will break first. Before breaking, a rope stretches from $\frac{1}{7}$ to $\frac{1}{6}$. A good hempen rope should stand a strain of more than 9,000 lbs. to the sq. inch.

Large ropes are either what is called *cable-laid* or *hawser-laid*. The former consist of three large strands, each made up of three smaller strands. A cable-laid rope of eight inches circumference is made up in this way of nine strands, each containing thirty-seven original yarns, or altogether

ROQUE—RORAIMA.

333 yarns. A hawser-laid rope consists of only three strands, each containing a sufficient number of yarns to make up the required thickness. The numerous lives and the vast property depending on the efficiency of ropes employed in shipping have brought great ingenuity and care to bear on the manufacture. One very great improvement of modern times has been the introduction of wire-ropes, now extensively used in rigging ships and for other purposes. They are generally of iron wire, sometimes but not always galvanized; and twisting is effected in the same way as the strands of a hempen rope are laid together.

ROQUE, *rok*, SAINT: born early in the 14th, or near the end of the 13th c., at Montpellier; of noble family; d. 1327: popular saint of the Rom. Cath. Church in France; patron especially of those sick of the plague. Of his history, nevertheless, few particulars have been preserved. Having undertaken a pilgrimage to Rome, he was surprised on his way through Italy by an outbreak of the plague at Piacenza, where he devoted himself with generous zeal to the care of the victims. Falling sick of the plague himself, and abandoned by man, he contrived to drag himself to a neighboring wood, where a dog used to lick his sores; and it pleased God to restore him to health.

ROQUELAURE, *n. rök-ě-laur'* [after the Duke de *Roquelaure*]: a short cloak or surtout, made to button from top to bottom, much used in the beginning of last century; also **ROQUELO**, *rök'ě-lō*.

ROQUEPLAN, *rok-plöng'*, **JOSEPH ÉTIENNE CAMILLE**: painter: 1803–1855, Sep. 29; b. Mallemort, France. He studied painting under eminent masters, at the age of 19 commenced exhibiting his work, and 1827 became widely and favorably known by his illustrations of characters from the romances of Sir Walter Scott. He gave much attention to landscape-painting, and reached a high position among the French artists of his day. Among his famous works

Roquelaure—Time of George II.

were the *Amateur Antiquary* and *The Well near the Tall Fig-tree*. He died at Paris.

RORAIMA, *ro-rī'mā*, MOUNT: wonderful table-topped sandstone mountain, near the w. border of British Guiana, lat. 5° 9' 40" n., long. 60° 48' w. With its companion, Kukenam, it constitutes an extraordinary formation of two pinkish sandstone tables—Mt. R. being 12 m. long. First sloping gradually upward from 4,925 to 7,759 ft. above sea-level, Mt. R. next rises 2,000 ft. more in a stupendous perpendicular cliff, down which dash foaming cataracts, one being 2,000 ft. high, prob. highest in the world. Mt. R. was scaled first by Mr. E. F. Im Thurn, 1884, Dec. 18.



RORAL—RORQUAL.

RORAL, a. *rō'ral* [L. *roralis*—from *ros*, *roris*, dew]: pertaining to dew; consisting of dew; dewlike; dewy: also **RORIC**, a *rō'rik* [L. *ros* (root *ror*), dew, and term. *-ic*], used in the phrase **RORIC FIGURES**: see **COHESION FIGURES**.

RORQUAL, n. *rōr'kwəl* [Norw. *rorqualus*, a whale with folds], (*Balenoptera*, or *Physalus*): genus of Cetacea of the same family (*Balenida*) to which the Greenland whale belongs; but distinguished by having a dorsal fin—not large, and with its point directed backward; also by the form of the head, which, instead of having the upper jaw much arched, as in the Greenland whale, has it in the skeleton nearly straight, the plates of baleen or whalebone being therefore much shorter, while along the throat and belly are many longitudinal folds, allowing of the distention of the integuments so as to form a great pouch for reception of water and prey, to be afterward sifted by the plates of baleen. For a long time these folds of the throat and belly were a puzzle to naturalists, but their use seems now ascertained. The form is more elongated than in the Greenland whale, and, as the girth of the largest rorquals has been found equal to that of the largest Greenland whales, the rorquals appear to be the largest of the Cetacea, and indeed of all animals at present existing in the world. The species, which in general are called Finner



Northern Rorqual.

whales, include the Common R. (*B. musculus*), 60–70 ft. in length; the Blue R. (*B. Sibbaldii* or *maximus*), 80 ft.; Rudolphi's R. (*B. borealis*), 50 ft.; the Lesser R. (*B. rosstrata*), 30 ft.; all these inhabiting the north Atlantic. In the Pacific occurs the Sulphur-bottom whale (*B. sulphurea*). Individuals of one or another of the Atlantic species are occasionally stranded on our coast, or towed in by vessels; and skeletons may be seen in the larger museums. The Blue R. is dark bluish-gray, whitish beneath: it is found in the arctic seas, visiting also those of n. temperate regions. When it comes to the surface of the water to blow, it does not lie motionless, as the Greenland whale usually does, but swims at the rate of about five m. an hour; and in blowing, it makes a prodigious noise. Its speed, when harpooned, is very great. Scoresby mentions

ROSA.

an instance of one carrying out 3,000 ft. of line in a minute. It is not easily captured; and whalers dislike it, because the Greenland whale is seldom found near it, while its own value is very inferior, owing to the comparative thinness of the blubber, and the shortness and inferior quality of the whalebone. It is, however, an important object of pursuit to the Laplanders and Greenlanders, who exhaust it by assailing it with weapon after weapon, and finally divide the spoil. A large R. yields 4,000 gallons of oil.—The R. does not feed so exclusively on small prey—*acalephæ*, mollusks, etc.—as the Greenland whale. Its gullet is much wider, and it preys much on fishes, the shoals of which it follows into bays and estuaries, devouring them in multitudes. The stomach of a R. has been found to contain 600 large cod and a great quantity of pilchards. One, 78 ft. long, which frequented the Firth of Forth, Scotland, for 20 years, was well known to the fishermen there, and much detested by them: it was at last stranded at Abercorn 1692. Other specimens described are the Mediterranean R. (*B. antiquorum*), and the Black whale of the s. Pacific (*B. australis*).

ROSA, *rō'zā*, EUPHYROSYNE PAREPA (PAREPA-ROSA): soprano singer: 1836–1874, Jan. 21; b. Edinburgh. Her father was a native of Walachia. Her mother, Elizabeth Seguin, trained R. to be a singer, and placed her under the tuition of Crescentini, Panseron, and Bordogni. Her *début* was at Malta 1855 as Amina in *La Sonnambula*, and she then took the stage-name Parepa. She married Capt. Carvell, ex-officer of the Brit. E. India Co.'s service, 1863, and then quit the stage; but was left a widow 1865, and having lost her property by an unwise investment, was obliged to return to her profession. She made the tour of the United States 1865, and again 1866–7. Having married Carl Rosa, violinist, during the latter tour, she and her husband organized an Eng. opera co. on their own account, and made tours in this country 1869–71. During the season of 1872–3 she sang in It. opera at Cairo. She was about to revisit America with a company when she died in London. Her voice was a soprano of great power, purity, and compass, and had been thoroughly trained. In oratorio it was remarkably effective.

RO'SA, MON'TE: see MONTE ROSA.

RO'SA, SAINT: saint of the Rom. Cath. Chh.: 1583–1617, Aug. 24; b. Lima, Peru; sometimes called St. Rose of Lima. Her parents, who were wealthy Spaniards, had her christened Isabel, but gave to her in childhood the pet name of Rosa, by which she was afterward known. They lost their property, and were supported by her labor, while she was living the life of a recluse, and she eventually entered the third order of St. Dominic. She was canonized by Pope Clement X. 1671, and her feast is Aug. 30. She is the only saint of American birth. She died at Lima.

ROSA—ROSACEA.

ROSA, SALVATOR: renowned painter of the Neapolitan school: 1615, June or July—1673, Mar. 15; b. Renella, in the neighborhood of Naples. His first instructor was Francesco Francavani, who had married his sister. His father died when R. was aged 17, leaving his family in poverty; and R.'s earliest landscapes were sold for a few pence; but some of them attracted the notice of Lanfranco, who, purchasing them, enabled and encouraged the young artist to pursue his studies. He became a pupil of Aniello Falcone, painter of battle-pieces, and afterward a pupil of Spagnoletto. Having gone to Rome, he was employed to paint an altar-piece and other works by the Neapolitan cardinal, Brancacci, and he accompanied Prince Carlo de' Medici to Florence, and executed several important works for him. He finally settled in Rome 1638, and died there. Salvator has great reputation as a painter, due mainly to his landscapes, which, though faulty in many respects, arrest attention by originality in subject and treatment, being generally representations of wild and savage scenes, executed with freedom and decision, and at times with grandeur. Salvator executed numerous etchings, highly characteristic of his peculiar style. In art, R. is regarded as one of the leaders into the modern era of romance and picturesqueness.—In disposition, R. was gay and jovial, though not vicious according to the standard of those times: he was generous, though vain of his own performances; and kind, though sharp of tongue. Indeed, he earned a rank among satirists by his rough, denunciatory, but brilliant *Satires*, published nearly half a century after his death.

ROSACEA, rō-zā'sē-a, or GUTTA ROSEA, or ACNE
ROSACEA: disease usually appearing first at or near the end of the nose; in some cases confined to the nose, in others extending to the cheeks, forehead, chin, or even the whole face. The skin in the part affected assumes a deep-red color, which usually disappears after a time, but returns either on no special provocation, or in consequence, apparently, of some gastric disturbance, and after a time becomes permanent; pustules of acne—a chronic pustular disease of the skin—now appear, and their yellowness contrasts strongly with the redness with which they are surrounded. The skin of the diseased part becomes irregularly swollen, and is marked with blue or red streaks, caused by congestion and enlargement of the capillaries; the whole surface, in a severe case, presenting a very disagreeable and repulsive appearance. This affection is no doubt often a result of intemperate living, but it may occur in persons of regular habits. Disorder of the digestive system is so often associated with it as to exclude the idea that the combination is accidental. The disease is confined almost exclusively to persons in middle or advanced life, and women are liable to it about the period of the 'change of life;' moreover it has occasionally been observed to be hereditary.—The general treatment consists in administration, under professional direction, of the compounds of iodine and mercury (singly or con-

ROSACEÆ.

joined) in alterative doses, and Donovan's Solution has been especially recommended; and a nourishing but bland and non-stimulating diet is prescribed. In the early stages the local treatment should be soothing: emollient lotions—e.g., emulsion of bitter almonds, cream, glycerine, etc.,—may be occasionally used during the day, and in severe cases a bread poultice may be applied at night. When the affection becomes indolent, the emollients should be gradually replaced by stimulating applications, such as Eau de Cologne, or others more powerful, as the physician may prescribe; and at a still later stage, iodide of sulphur ointment, in the proportion of 15 grains or a scruple of the iodide to an ounce of lard, is highly commended. When the disease is of long standing, it sometimes defies all known remedies.

ROSACEÆ, *rō-zē'sē-ē*: natural order of exogenous plants, containing many species of great usefulness, and many in high esteem for beauty. It contains trees, shrubs, and herbaceous plants, natives chiefly of cold and temperate regions, and far more abundant in the n. than in the s. hemisphere, including nearly all of our most esteemed fruits. As a feature in autumn cultivated landscape, they are of interest as retaining their foliage and its greenness very late in the season, though a few, like wild briars, change their color; one, the Evergreen Thorn, is characterized by its name. Within the tropics, they are found chiefly, but not exclusively, in elevated situations. The leaves are alternate, have stipules, and are either simple or compound. The flowers are generally hermaphrodite, but sometimes unisexual; the inflorescence is various. The calyx is 4-5-lobed, generally 5-lobed; the petals as many as the divisions of the calyx, or occasionally wanting, perigynous. The stamens are few or many, arising from the throat of the calyx; the ovary sometimes solitary, sometimes there are several ovaries; each one-celled, with a lateral style; or a number of ovaries are united into a many-celled pistil; the ovules generally two or more. The fruit is sometimes a drupe; sometimes a pome; sometimes follicular; sometimes an achenium; sometimes a heap of achenia, or of one seeded berries; sometimes a heap of achenia, covered with the fleshy tube of the calyx.—This nat. order contains at least 1,000 known species; but in some of the genera, as *Rosa* and *Rubus*, the determination of the species is difficult, and varieties—sometimes reckoned species—are numerous.—The order, as generally received, is divided into a number of sub-orders, several of which have by some botanists been elevated to the rank of distinct orders, as *Amygdaleæ*, *Pomaceæ*, *Sanguisorbeæ*. See also ROSE: RUBUS: STRAWBERRY: POTENTILLA: TORMENTIL: AGRIMONY: GEUM: SPIRÆA: CUSO: ETC.: also PLUM: PYRUS: ETC.

ROSAMOND—ROSARY.

ROSAMOND, *rōs'a-mōnd*, usually **FAIR ROSAMOND**: daughter of Sir Walter Clifford, and mistress of Henry II., King of England; died 1177. There are many legends regarding her. Of these, some, like those which claim that she was the mother of Geoffrey, who became abp. of York, and of William Longsword, who was Earl of Salisbury, had no foundation in fact; while those relating to her concealment by the king and her murder by the queen are highly improbable. She was noted for her beauty; was still in her girlhood when she died; and was buried in a church connected with a nunnery at Godstow; but 1191 her remains were removed by order of the bp. of Lincoln and were interred outside its walls.

ROSANILINE, *n.* *rō-zăn'ĭ-lĭn*, or **ROSEINE**, *n.* *rō'zě-ĭn* [*rose*, and *aniline*]: one of the aniline dyes, prepared by heating aniline with arsenic acid; a dye of a rose or red color.

ROSARIO, *rō-să'rē-ō*: town of the Argentine Republic, on the right bank of the Parana, 170 m. n.w. from Buenos Ayres, 210 m. by river. It is the most important town on the Parana, and is rapidly increasing in population and commerce. The annual value of merchandise imported direct sometimes exceeds \$7,000,000; the exports, mainly wool, hides, and bones, are sent mostly to the United States. R. is the terminus of a railway to Cordova. Pop. (1882) 32,204; (1885) 55,000.

ROSARY, *n.* *rō'zā-rĭ* [*F. rosaire*, a rosary—from *L. rosā-rius*, pertaining to roses; *rosārium*, a rose-garden—from *L. rosa*; *Gr. rhodon*, a rose: *It. rosario*, a rosary]: anciently, a rose garden, or a rose-bush. It denotes sometimes a garland of roses, or any chaplet; thence a compendium of literary 'flowers'—an anthology. The word is appropriated specially to a string of beads used as aids in devotion. **ROSARY OF THE BLESSED VIRGIN**, in the Rom. Cath. Church, a very popular form of devotion, whose characteristic is the use of beads to reckon the number of repetitions of a certain prayer. The name rosary has been variously traced either to the title 'Mystical Rose,' one of the titles under which the Blessed Virgin is addressed in the Litany (q.v.), of Loretto or to St. Rosalia's wreath of roses, well known in sacred art, or to the beads being originally made commonly of rosewood. The origin of the devotion itself is popularly traced to St. Dominic (q.v.), and doubtless truly as regards its popularization in its present form; but its characteristic use of beads is of far greater antiquity: see **BEAD**. A similar use of beads exists among the Mohammedans; but it appears that the practice existed among Christians before the time of Mohammed. Originally the prayer so repeated was the Lord's Prayer; but, in the 11th and 12th c., the angelical salutation: 'Hail, Mary!' etc., was added to the 'Our Father.' The rosary, though called of the Blessed Virgin Mary, is a series of 15 prayers, founded on the chief mysteries of the incarnation and passion of our Lord, interspersed with repetitions of the 'Our Father,' the 'Hail, Mary!' and the ancient doxology. It

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consists of three parts, each of which contains five so-called mysteries (called also 'decades,' from the ten 'Hail, Marys'), consisting of (1) a 'meditation,' briefly proposing the mystery which is to be meditated upon; (2) one 'Our Father;' (3) two 'Hail, Marys;' (4) one doxology; (5) a prayer begging for the special grace or fruit appropriate to the particular mystery: thus the whole rosary comprises 15 'Our Fathers' and 'Doxologies,' and 150 'Hail, Marys.' The 'Greater Rosary' consists of the recitation of the whole 15 mysteries, with their component prayers: the 'Lesser Rosary' consists of one of the three parts, or of five mysteries: the 'Living Rosary' is recited by an association of 15 individuals, each engaging to say daily one mystery. When recited publicly, the prayers are repeated alternately by the priest, or other person presiding, and by the congregation. There are various forms of these devotions in different countries. The rosary has been sanctioned and recommended by numberless popes and other ecclesiastical authorities; and Indulgences (q.v.) have been granted to persons reciting it with proper dispositions. It is regarded by Rom. Catholics as one of their most excellent forms of prayer, and as placing the devotion to the Virgin Mary on its true footing—that of a devotion to the incarnation and death of her Son, Jesus Christ. It is expressly adapted (as accompanied by special instructions) for the poor and the ignorant.

The mechanical instrument for this devotion is also called rosary. It consists of a string of beads, equal in number to the 'Our Fathers' and 'Hail, Marys' which are recited—the 'Our Father' beads being of larger size—one of which is passed through the fingers at each recitation of the prayer, to prevent errors of memory. The beads are of various material—berries, wood, stone, ivory, metal, etc.; and are often of costly workmanship, and of considerable intrinsic value. They are blessed for the use of the people by the pope, by bishops, and by others authorized.

ROSAS, *ro'sás*, Don JUAN MANUEL, President of the Argentine Confederation: 1793, Mar. 30—1877, Mar. 14; b. Buenos Ayres; descended from an ancient family of the Asturias. He entered the army of Buenos Ayres, and 1829 rose to be gov. or capt.gen. of his native province. In 1835 he recommended the election of a single president for the whole Argentine Confederation, which was falling to pieces through feebleness of its local governments; and the choice fell upon him. Intestine commotion subsided under his rule, industrial resources were developed, and foreign commerce rapidly increased. The other states, however, became jealous of the growth and power of Buenos Ayres, which had been made the capital; and R. was accused of a design to advance unduly his native state and city. In his attempt to compel Paraguay to join the Confederation, R. became involved in unsuccessful war with Brazil; also his policy led him to an attack on Montevideo, for whose protection England and France interfered. His rule had by this time become so oppressive that the

ROSCELIN—ROSCOE.

subject states revolted, selected Don J. J. Urquiza as their pres. and gen., and defeated R. in a battle at Monte Caseros, 1852. R. fled to England and resided there till his death.

ROSCELIN, *ros-läng'* (or **ROSCELLI'NUS**, or **ROUSSELIN**, *rôs-läng'*), OF COMPIÈGNE: b. in Lower Brittany about the middle of the 11th c.; d. after 1121: called the 'founder of Nominalism;' but rather its first clear definer. He was strongly opposed by Anselm of Canterbury, and his views were condemned by councils 1092-94. See **NOMINALISM**.

ROSCIUS, *rôsh'î-ûs*, **QUINTUS**: great comic actor of ancient Rome; b. at Solonium, village near Lanuvium; d. B.C. 62. Among his admiring and affectionate patrons was Cicero, who received lessons in elocution from the great comedian. When R. was sued at law by C. Fannius Chærea for 50,000 sesterces, Cicero defended him before the judex Piso (probably B.C. 63) in his eximian oration, *Pro Q. Roscio Comædo*. R. attained such perfection in his peculiar art, that to be a 'Roscius' became synonymous with pre-eminence; and he left an immense fortune, realized on the stage.

ROSCOE, *rôs'kô*, **WILLIAM**: eminent historian of Lorenzo de' Medici and Leo X.: 1753, Mar. 8—1821, June 30; b. near Liverpool, England. His father was a market-gardener, whose assis' at he became in his 12th year, after receiving the rudiments of learning at a common school. In 1769 he was articled to an attorney at Liverpool; and 1774 was admitted an attorney of the court of king's bench, and began practice. Meanwhile he had studied assiduously the classics, and the Italian language and literature. In 1773 he appeared in print as author of a poem; and 1777 a collection of some of his earlier pieces was published, containing his first protest against the slave-trade. In 1796 was published vol. I. of his *Life of Lorenzo de' Medici, called the Magnificent*, begun many years before. Its success was extraordinary, and it at once established his literary reputation. It went through several editions, and was translated into German, French, and Italian. In 1805 appeared his second great work, *Life and Pontificate of Leo X.*, for which, with assistance of others, he had been collecting materials for many years. This work, which also appeared successively in German, French, and Italian, maintained R.'s repute, though, as dealing with a controverted subject, its tone and spirit were severely criticised by some, and it was placed on the papal *Index Expurgatorius*.

R. about 1800, turning from the legal profession, became partner in a Liverpool bank, a step which involved him eventually in great pecuniary embarrassment. In 1806 he was returned to parliament for Liverpool in the whig interest; and had the gratification of taking part in the abolition of the slave-trade; but he did not find parliamentary life congenial, and declined a candidacy the next year. He was, throughout, a consistent opponent of the war with France, against which he published several pamphlets, and

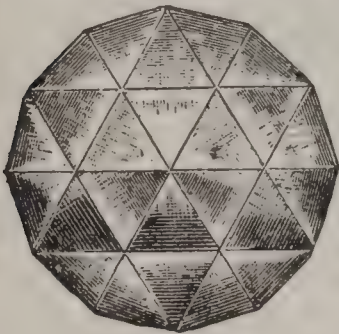
was on all points the advocate of liberal opinions. He was a zealous promoter of literature, and patron of the fine arts. He died at Liverpool.—R. was of fine moral fibre, lofty in principle, punctilious in business honesty, courageous for the unpopular right. His works, though not retaining their former pre-eminence, keep a place among valuable historical contributions.

ROSCOMMON, *rös-köm'on*: inland county of Ireland, in the e. of the province of Connaught; bounded e. by the river Shannon: it is 60 m. long from n. to s., 40 m. broad from e. to w.; 607,691 acres, of which 440,522 are arable. The surface of R., which belongs to the central plains of Ireland, is level, with undulations rising in the s. into the Slieve Bawn range, whose highest point is 867 ft.; and in the n. into the Curlew Mountains, of which Slieve Curkagh attains a height of 1,098 ft. Its principal rivers are the Shannon (q.v.) and the Suck. R. communicates by means of the Midland Great Western, the Southern and Western, and Northwestern railways, with all parts of the kingdom. In geological structure, it belongs to the central limestone formation, in some districts of which the sandstone protrudes. The soil in the central district is in general light, but fertile, and affords the finest sheep-pasture in Ireland—the 'Plain of Boyle.' Some portions contain a rich and fertile loam; but the chief farming industry is the feeding of sheep and cattle.—The county has little manufacture. The chief towns are Roscommon (q.v.), Boyle, Castlereagh, Elphin, and Strokestown. R., in the ante-English period, was the country of the septs of MacDermott, O'Daly, O'Kelly, and, above all, O'Connor, of which there were two branches, that of the O'Connor Roe (red), and that of the O'Connor Don or Dhun (brown). The present representative of the O'Conors, the O'Connor Don, is one of the very few Irish princes who have succeeded to the hereditary estates of their ancestors. R. possesses a vast number of antiquities of the Celtic period, raths, etc.; portion of a round tower at Oran, several remains of strong castles of the English period, and some fine ecclesiastical ruins, of which Boyle, Roscommon, Tulsk, and Clonshanville are the principal.—Pop. (1881) 132,490. 737 persons speak Irish only. Number of pupils on the roll of the national schools (1880) 33,925 (of whom 33,245 were Rom. Catholics). Number of emigrants from R. (1851-71) 52,299. Pop. (1891) 114,194; (1901) 101,791.

ROSCOMMON: capital and assize town of the county of R., Ireland; 96 m. w.-by-n. from Dublin. It dates from the 13th c., when it arose around a Dominican abbey, founded by the O'Connor 1257, and a castle built soon afterward by Sir Robert de Ufford, the remains of both of which are still seen. R. is a market-town, in which corn is the principal commodity. It has scarcely any manufacture, and little commercial enterprise. Two newspapers are published here. Pop. (1861) 2,699; (1881) 2,117; (1891) 1,994.

ROSCREA, *rös-krä'*: market-town of the county of Tipperary, Ireland; 94 m. s.w.-by-w. from Dublin, with which it is connected by a branch from the Great Southern and Western railway. It is a very ancient town, dating back to the early Christian period, when a monastery was built on this site in the beginning of the 7th c. The modern town is moderately well built; the Rom. Cath. church is a handsome structure; and there are considerable remains of the ancient greatness of the town—a castle, a lofty round tower, 80 ft. high, and ruins of two abbeys. The only manufacture is coarse woolen cloth, but there is a market for agricultural produce. There are schools with endowments of ancient date.—Pop. (1861) 3,543; (1881) 2,801, more than 400 being Prot. Episcopalians.

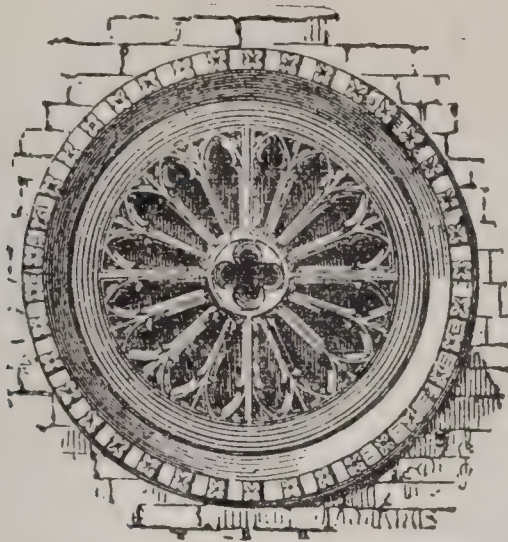
ROSE, n. *rōz* [F. *rose*—from L. *rosa*; Gr. *rhodon*, a rose: It. *rosa*: Ger. and Dan. *rose*]: well-known plant, or its universally admired flower, having many species and varieties (see below). **ROSACEOUS**, a. *rō-zā'shūs*, belonging to the order of plants called **ROSA'CEÆ**, *-sē-ē*; like a rose; in *bot.*, applied to corollas having separate sessile petals like the rose (see **ROSACEÆ**). **ROSACIC**, a. *rō-zūs'ik*, applied to a substance (rosacic acid) of a brick-like, rose, or red color, deposited by the urine in gout and inflammatory fevers. **ROSEAL**, a. *rō'zē-āl*, like a rose in smell or color. **RO'SEATE**, a. *-āt*, of a rose color; resembling a rose. **RO'SY**, a. *-zī*, blooming red; blushing; charming. **RO'SINESS**, n. *-zī-nēs*, the quality of being rosy; resemblance to the color of the



Rose-diamond.

rose. **ROSE-COLORED**, or **ROSE-HUED**, a. having the color of a rose. **ROSEBUD**, a rose before it expands. **ROSE-BUSH**, the shrub or plant which bears roses. **ROSE-DIAMOND**, a diamond nearly hemispherical, cut into twenty-four triangular planes or facets (see **BRILLIANT**). **ROSE-DROP**, a confection or sweetmeat; a ruddy eruption upon the nose. **ROSE-ENGINE**, an appendage to the turning-lathe, by which a surface of wood or metal, as a watch-case, is engraved with a variety of curved lines, presenting some resemblance to a full-blown rose (see **TURNING**). **ROSE-GALL**, a curious excrescence on the dog-rose. **ROSE-MALLOW**, the hollyhock. **ROSE-PINK**, pigment of rose color: **ADJ.** having a pink color, like that of the rose. **ROSE-TURNING**, the use of the rose-engine, or the pattern produced thereby. **ROSE-WATER**, a perfume distilled from rose-leaves (see **PERFUMERY**). **ROSE-WINDOW**, in *arch.*, a circular window with its compartments branching from a centre, forming divisions which bear a general resemblance to the leaves of a rose. **UNDER THE ROSE**, a translation of the Latin '*sub rosa*,' which signifies, in a manner that forbids disclosure; in secrecy; privately: Latham connects this phrase with the practices of the secret sect of the *Rosicrucians* of the 17th c., who were popularly styled the *Brothers of the Rosy Cross* (see **ROSICRUCIANS**). *Note*,—The

rose is the emblem of England, the *thistle* of Scotland, and the *shamrock* of Ireland.



Rose-window, St. David's, Wales.

ROSE: pt. of **RISE**, which see.

ROSE (*Rosa*): genus of plants of nat. order *Rosaceæ*, consisting of shrubs, generally with prickly stems and pinnate leaves, the leaves terminating in a single leaflet; stipules at the base of the leaf-stalks; the calyx 5-cleft, its tube contracted at the summit, and finally becoming fleshy, and forming a chief part of the fruit; the corolla of five petals; the stamens numerous; the styles springing from the narrowed throat of the calyx, free, or aggregated into a column. The flowers are generally of the red tint well known as *rose color*, but sometimes white, more rarely yellow, and sometimes striped. The fruit (*Hip* or *Hep*) consists of the enlarged and colored tube of the calyx, within which are contained many *Achenia* (q.v.) amid prickly hairs. The species are very numerous, even after allowance for a great number of varieties elevated into species. There is no genus of plants in which the limits of species are more difficult to define, or in which varieties are more apt to be regarded as species. Roses are natives of all temperate parts of the n. hemisphere, and of its colder regions, even to Lapland and Hudson's Bay. Asia and Africa have supplied many fine sorts, but Australia, which produces many remarkably beautiful flowers, has no indigenous species. Roses have long been among the chief favorites in flower-gardens, for the beauty and fragrance of their flowers; and, more than any other flower, emblems of everything beautiful and delightful. Countless varieties—single and double—have been produced by hybridizing and cultivation. Among the ancients the R. was sacred to Eros or Cupid, and Aphrodite or Venus, and was considered the emblem of joy and love, and at the same time of prudence. When a R. was placed over the door of a room in which a Roman feast was held, whoever passed beneath it thereby incurred a solemn obligation not to reveal what was seen or heard; and from this custom the term *sub rosa*, as applied to anything told

in confidence, is derived. At a later period the R. was placed at the entrance to the confessional at Rome, as a symbol of secrecy. Poets have long used the opening buds of the R. as an image of purity and innocence. It is almost universally known as the Queen of Flowers.

Among the older roses is the Provence (*R. centifolia*), native of the e. Caucasus, called also the Cabbage R., and probably known to the ancients as the Hundred-leaved R., which is beautiful and fragrant. It was taken from Holland to England about 1567. The Moss R. (*R. centifolia muscosa*), an almost universal favorite, is probably a 'sport,' or accidental variation, from the Provence. It derives its name from the fact that the calyx has the appearance of being covered with moss. The French R. (*R. Gallica*) is an old and numerous family, with large flowers and with many variegated sorts, and is popular in gardens. It is grown largely in France for manufacture of otto of roses. The Damask R. (*R. Damascena*) of Syria is cultivated in Damascus for manufacturing purposes, and in gardens in the western world. Most of the perpetual roses originated from this stock. The White R. (*R. alba*) is from central Europe. The Sweet-brier R. (*R. rubiginosa*) is indigenous to Gt. Britain. The Austrian Brier R. (*R. lutea*) is from n. Italy and is the source of the best hardy yellow roses. The Alpine R. is the source of the Boursault R. (*R. Alpina*), originated by and named for M. Boursault of Paris. The Banksian R. (*R. Banksiana*), from China, named for Lady Banks, is a prolific and beautiful climber, but not hardy in cold climates. Of the hybrid roses, the Hybrid China (*R. Indica hybrida*) class contains many popular sorts. It is said that the first crossing which produced these sorts was accidental, but the result led to careful efforts by which many splendid varieties have been formed. The Hybrid Bourbon R. (*R. Borboniana hybrida*) has many fine varieties, which bloom well in autumn. The original of this type (*R. Borboniana*) is supposed to have come from an accidental seedling of a plant in a hedge on the Isle of Bourbon. The Hybrid Perpetual class has many splendid roses which are fragrant, hardy, and vigorous. They yield many flowers in June, and some later in the season, but are not as continuous bloomers as the Tea and China sorts. The Musk R. (*R. moschata*), from Persia and n. Africa, has a musk-like odor, flowers in autumn, but is too tender for common cultivation. The China R. (*R. Indica*) was taken to Europe 1789, and the Tea-scented China R. (*R. Indica odorata*), also from China, in 1810. One of the most peculiar of the Tea roses is the American Banner, with a striped crimson and white flower, which appeared as a 'sport' 1877 and has perpetuated its markings. As a class, the Tea roses are quite tender; and at the north, except for professional cultivators, it is better to put out young plants each spring than to attempt to keep the old ones through the winter. The Noisette class of roses (*R. Noisettiana*) was originated 1817, in S. C., by Mr. Noisette, who crossed the China and the Musk roses. It contains a large number of fine varieties, but many of them do not thrive far north.

ROSE.

The Polyantha Remontant R. (*R. Polyantha*), from Japan, is of dwarf habit, blooms in clusters, and is specially useful for bedding purposes. The Japanese species (*R. rugosa*), brought to the United States by Com. Perry, produces large crimson flowers, remains long in bloom, and is a remarkably handsome bush.—Many native N. Amer. species have been described, but not all well established. The Swamp R. (*R. Carolina*) has hooked prickles, and grows 4–8 ft. high; the Dwarf Wild R. (*R. lucida*), 1–2 ft., has the depressed hip nearly smooth; the Early Wild R. (*R. blanda*) of rocky banks, 1–3 ft., has a globular hip; the Prairie or Wild Climbing R. (*R. setigera*) of the west and south is exceedingly beautiful (though not fragrant) in all its cultivated varieties, such as the Queen of the Prairie, etc. It is a great bloomer, and very hardy. The Cherokee R. (*R. Sinica*) is from China, and often runs wild at the south, as do there and elsewhere the Dog-rose and Sweet-briers, naturalized from Europe.

Propagation is easily effected by cuttings and layers. Roses are usually grown on their own roots, but weak varieties are sometimes worked on the more vigorous Manetti. The latter plants should be set so that the junction of bud and stock will be about 3 in. below the surface of the ground. Plants can be kept in pots, but give better results when set in open ground. The soil should be pulverized to a depth of 12 inches, and be well manured. The earth must be tightly packed around the roots when plants are set; and if the weather is hot, the stems should be shaded for a few days. The ground should be kept free from grass and weeds; and, to increase the number of blossoms, the flowers should be removed as soon as they are fairly open. Pruning is to be varied with the character of the variety, but dead shoots should be removed from all plants before growth begins in spring. Climbing roses bloom on wood grown the previous season and need pruning only to keep the plant within bounds. Ever-blooming, hybrid perpetual, and moss roses bloom on new wood, and early in spring need cutting back about half of the growth made the previous season. Spring is the best season for planting at the north; but in warm climates, either autumn or winter is more desirable. Many varieties which are not quite hardy at the north can be kept through the winter by covering the ground with forest leaves; but care must be taken not to give this protection too soon in the fall or remove it too early in the spring.

By proper treatment under glass, the R. is readily forced to bloom in winter, and immense numbers of buds and blossoms are produced in this way for sale in large cities.

The genus *Loewia* has been separated from *Rosa* by Lindley, chiefly on account of the simple leaves. The only known species is native of central Asia.

The fruit of roses is used in medicine: see HIP. A mildly astringent and agreeable syrup, and other preparations, are made from the rapidly dried petals and buds of the French rose. A syrup is similarly made from the petals of the Hundred-leaved R.; and water distilled from them,

ROSE—ROSE-BUG.

Rose-water, is in demand for its agreeable odor. *Rose Vinegar*, made by steeping rose petals in vinegar, is useful as external application in headaches, for dissipating unpleasant smells in apartments, etc. *Conserve of Roses* is made of the petals of roses pounded with sugar, and is useful as an astringent in diarrhœa of children. Oil or Otto (q.v.) of Roses is one of the most valuable perfumes.



Rose.

ROSE, in Heraldry: a badge; drawn in a conventional form (see illus.), never with a stalk, except when expressly directed by the words of blazon. The rose gules was the badge of the Plantagenets of the House of Lancaster, and the rose argent of that of York. The York rose was sometimes surrounded with rays as of the sun, and termed *rose en soleil*.

ROSE, n. *rôz*, or ROSE-RASH, n. *rôz-râsh* [*rose*, and *rash*, an eruption]: in *Scot.*, eruption on the skin, of small rose-colored patches, very slightly elevated; Erysipelas (q.v.), known also as St. Anthony's fire, *Ignis sacer*, etc.

ROSE ACA'CIA: see ROBINIA.

ROSE AP'PLE: see EUGENIA.

ROSE BEE'TLE (*Cetonia aurata*): coleopterous insect of section *Pentamera*, of tribe *Lamellicornes*, and not distantly allied to cockchafers and to the true beetles or *Scarabæi*. It is about an inch long, of shining green above, coppery red underneath.

ROSEBERRY, *rôz'bér-î*, ARCHIBALD PHILIP PRIMROSE, Earl of, LL.D., P.C.: born London, 1847, May 7; son of Archibald, Lord Dalmeny. On the death of his grandfather, to whose title he succeeded, he left Christ-Church, Oxford, without completing his college course; spent some time in foreign travel, and appeared in public life 1871, when he made a speech in the house of lords which won great favor. In 1874 he was pres. of the Social Science Congress at Glasgow, was married 1878 to a daughter of Baron Mayer de Rothschild, and 1880 was elected lord rector of the Univ. of Edinburgh; was under-sec. of state for the home office 1881-83; became first commissioner of works 1884, sec. for foreign affairs 1886, and a member of the London county council 1889. He is a liberal in politics, is one of the leaders of his party, and is interested in various philanthropic movements. He became Secretary of State for Foreign Affairs under Gladstone 1892, and succeeded Gladstone as premier 1894, holding that position until the Liberals went out of power 1895. In 1896, Oct. 6, he resigned the leadership of the Liberal party. His wife died 1890, Nov. 19.

ROSE BUG (*Macrodactylus subspinosus*): small grayish-yellow beetle; named from the fact that it appears about the time that roses in open ground come into bloom. It is one of the most destructive beetles known, and preys upon leaves, blossoms, buds, and young fruit, and sometimes destroys whole crops of grapes, strawberries, peaches, apples, and other fruits, as well as vegetables and flowers.

ROSECRANS—ROSELITE.

These beetles come and go suddenly. The period of their activity ranges from four to six weeks. At its close the males perish; the females deposit their eggs in the earth and soon die. The eggs hatch in about 3 weeks, and the larvæ feed on roots till autumn, when they go deeper into the ground. They remain torpid during the winter, come nearer the surface as the weather grows milder, enter the chrysalis state in May, and become perfect beetles and emerge from the ground in June. The most efficient remedy seems to be to pick or brush them from the bushes or vines into vessels containing water, and afterward destroy them. This work must be done early in the morning. Spraying infected plants with preparations of kerosene, whale-oil soap, or a decoction of ailantus leaves, hanging vials containing bisulphide of carbon among the plants, or dusting them with air-slaked lime, sometimes proves effectual, but often fails. Some of the remedies efficient with most insects have no effect on the rose-bug, and most applications which will kill this pest will also kill the leaves and in many cases will destroy the plants.

ROSECRANS, *ro'ze-kränss*, WILLIAM STARKE: soldier: b. Kingston, O., 1819, Sep. 6. He graduated from West Point 1842, was assistant prof. there 1843-47, made various river and harbor surveys and improvements, resigned from the army 1854, and became an architect and civil engineer in Cincinnati 1854. He became president of a coal company in W. Va. 1856, and the next year formed a company for manufacturing kerosene. On the opening of the civil war he joined the staff of Gen. McClellan as aide, was rapidly promoted, and reached the rank of brig. gen. U. S. army with commission dating 1861, May 16. He followed Gen. McClellan in command of the dept. of the Ohio, served in the Army of the Mississippi, succeeded Gen. Pope in its command, and afterward followed Gen. Buell in the dept. of the Cumberland; lost the battle of Chickamauga, largely, it is claimed, through the misinterpretation of an order, and was relieved 1863, Oct. 23; but the following Jan. was placed in command of the dept. of the Missouri, and turned back the Confederate invaders of that state under Gen. Price. His services at the battles of Iuka, Corinth, and Murfreesboro were of special importance, and he was brevetted maj. gen. U. S. army for gallantry at the battle of Stone river. He was mustered out of the volunteer service 1866, and 1867, Mar. 28, resigned from the regular army; he declined the nomination of gov. of Cal., and afterward that of gov. of O.; was U. S. minister to Mexico 1868-9; was interested in various railroad, mining, and manufacturing enterprises; was member of congress from Cal. 1881-85, and in the latter year, June, became register of the U. S. treasury, which office he still (1891) holds. He was appointed brig. gen. U. S. army 1889, Feb. 27, and was placed on the retired list the same day.

ROSELITE, n. *rō'zēl-īt* [after G. Rose, the famous German naturalist]: a deep rose-red-colored variety of cobalt bloom.

ROSEMARY.

ROSEMARY, n. *rōz'mā-rĭ*, or ROSEMARINE', -*mā-rĕn'* [L. *rosmārĭnus*, rosemary—from *ros*, dew; *mārĭnus*, marine—from *mārĕ*, the sea: It. *rosmarino*: F. *romarin*], (*Rosmarĭnus*): genus of plants of nat. order *Labiata*, and nearly allied to Sage (*Salvia*), from which it differs in its filaments having an awl-shaped tooth, directed downward a little above the base. Only one species is known, *R. officinalis*, an evergreen erect shrub 4-8 ft. high, with linear leaves and pale-bluish flowers, growing in sunny places, on rocks, old walls, etc., in the countries around the Mediterranean Sea, and generally cultivated, as an ornamental and aromatic



Rosemary (*Rosmarinus officinalis*).

shrub, throughout the rest of Europe. The leaves have a short whitish-gray down beneath, a penetrating camphor-like odor, and a pungent, aromatic, and bitter taste. They contain a large quantity of an essential oil, *Oil of R.* used as a stimulating liniment to promote growth of the hair, and as a perfume. *Spirit of R.*, made by distillation of sprigs of *R.* with rectified spirit, is used to give pleasant odor to lotions and liniments. *R.* is to some extent in European practice used internally in chronic diarrhoea and a relaxed state of the system.—Oil of *R.* is a principal ingredient of the perfume *Hungary Water* or *Queen of Hungary's Water*.—The name Wild *R.* is given to *Ledum palustre*, a shrub with narcotic acrid properties.

ROSEN—ROSENMÜLLER.

ROSEN, *ro'zén*, FRIEDRICH AUGUST: 1805, Sep. 2—1837, Sep. 12; b. Hanover. He entered Leipzig Univ. 1822, studied the biblico-oriental languages, and went to Berlin 1824, where he studied Sanskrit under Bopp, and published his first work, *Radices Sanscritæ* (Berl. 1827). Subsequently, he was called to London Univ. as prof. of oriental literature; resigning 1831. The revision of the Sanskrit Bengali Dictionary of Houghton (Lond. 1835) was his work; and he compiled for the Brit. Museum the catalogue of Syrian MSS. (Lond. 1839). His unfinished work on the Vedas was published by the Asiatic Soc. (of which he had been sec.) under the title *Rigveda-Sanhita, liber primus, Sanscritæ et Latine* (Lond. 1838).—His younger brother, GEORG R., also acquired reputation as an oriental scholar.

ROSENAU, *rô'zéh-now*: town of Hungary, beautifully situated on the Sajo, 105 m. n.e. of Pesth. It has colleges and a Franciscan convent. There is mining in the neighborhood; and there are manufactures of woolen cloth and linen, of stoneware, leather, and paper. Pop. 5,000.

ROSENDALE, *rô'zén-dāl*: township in Ulster co., N. Y.; bounded e. by Wallkill, n.w. by Esopus creeks. The Wallkill Valley branch of the Erie railroad and the Delaware and Hudson canal pass through it; and within it is a group of small lakes called Binnewaters. R. has excellent limestone quarries, and the villages of Rosendale and Binnewater manufacture large quantities of hydraulic cement, which finds a market in all parts of the country. Pop. (1880) 4,720; (1890) 6,063; (1900) 6,278.

ROSENMÜLLER, ERNST FRIEDRICH KARL: distinguished biblical critic and orientalist: 1768, Dec. 10—1835, Sep. 17; b. Hessberg, near Hildburghausen; eldest son of Johann Georg R. He studied at Leipzig, became extraordinary prof. of oriental lit. 1795, ordinary prof. 1813. He was a more accurate and solid scholar and a keener critic than his father. He shared the rationalism of his time, but never carried it to an extreme. His masterpiece, *Scholia in Vetus Testamentum* (11 vols. Leip. 1788–1835), is a most comprehensive and learned production, well worthy of consultation on any important point of biblical criticism. Other works of R.'s are: *Handbuch für die Literatur der biblischen Kritik und Exegese* (4 vols. Gött. 1797–1800); *Das alte und neue Morgenland, oder Erläuterungen der Heiligen Schrift* (6 vols. Leip. 1818–20); *Handbuch der biblischen Alterthumskunde* (4 vols. Leip. 1823–31); *Institutiones ad Fundamenta Linguae Arabicæ* (Leip. 1818); and *Analecta Arabica* (2 vols. Leip. 1825–6).—His younger brother, JOHANN CHRISTIAN R. (1771–1820), acquired reputation as writer on anatomy, etc.

ROSENMÜLLER-ROSE OF JERICHÓ.

ROSENMÜLLER, *ro'zén-mül-lér*, JOHANN GEORG: German divine and prof. of theology: 1736, Dec. 18—1815, Mar. 14; b. Ummerstädt in Hildburghausen. He was appointed prof. of theology at Erlangen 1773, primarius prof. of divinity at Giessen 1783, and was called 1785 to Leipzig, where he remained till his death. Among his many writings are: *Betrachtungen über die vornehmsten Wahrheiten der Religion auf alle Tage des Jahres* (4 vols. Leip. 1801); *Predigten über auserlesene Stellen der Heiligen Schrift* (3 vols. Leip. 1811-13); *Scholia in Novum Testamentum* (6 vols.; 6th ed. by his son, Ernst F. K. R., Leip. 1815-31); and *Historia Interpretationis Librorum Sacrorum in Ecclesia Christiana* (5 vols. Leip. 1795-1814).

ROSE-NOBLE (commonly called also *Penny of Gold*): English gold coin, struck first by King Edward III., 1334, and current at the value of 6s. 8d. sterling (about \$1.65): half-nobles, *oboli*, or gold half-pence, and quarter-nobles, otherwise called *gold farthings* and *quadrantes*, were coined soon afterward. The name was given to the coin because it was of the same value as the 'noble,' a money of account, and was stamped on one side with the figure of a rose.



Rose-noble.

The R.-N. and its halves and quarters ceased to be coined after 9 Henry V.; but the 'noble,' the money of account, was used till a much more recent period.—The noble also existed in the Scotch coinage, and was equivalent to one-twelfth of the English coin.

ROSE OF JERICHÓ (*Anastatica hierochuntica*): plant of nat. order *Cruciferae*, which grows in the sandy deserts of Arabia; and on rubbish, the roofs of houses, and other such situations, in Syria and other parts of the East. It is a small, bushy, herbaceous plant, seldom more than six inches high; with small white flowers; and after it has flowered, the leaves fall off, and the branches become incurved toward the centre, so that the plant assumes an almost globular form, and in this state it is often blown about by the wind in the desert. When it happens to be blown into water, the branches expand again, and the pods open and let out the seeds. Numerous superstitions are connected with this plant, which is called *Rosa Mariæ*, or *Rose of the Virgin*. If taken up before it is quite withered, the plant retains for years its hygrometric property of contracting in drought and expanding in moisture.

ROSEOLA—ROSE QUARTZ.

ROSEOLA, n. *rō-zū'ō-la* [L. *rosa*, a rose—so called from its color]: common skin-disease, included in the division *Rashes*, and sometimes termed *Scarlet Rash*. In some cases, it begins with slight febrile symptoms and gastric disturbance, which subside in two or three days, when the rash appears; in other cases, no preliminary fever occurs. The eruption appears first on the face, neck, and chest, in specks or small patches which have tendency to coalesce; and in severe cases, the whole surface of the body assumes a uniformly red tint. The eruption is usually accompanied by itching of the affected parts, and by redness and slight soreness of the throat, and seldom lasts more than two or three days, when it gradually fades away; and its disappearance is not followed by the desquamation of epidermis, which is one of the natural *sequelæ* of scarlatina and certain other skin-diseases. The rash differs considerably in appearance in different cases. The disease is never contagious, and one attack affords no immunity from a second.

Among causes of R. are irritation excited by dentition, gastric and intestinal irritation, excessive acidity of the stomach, sudden checking of profuse perspiration, drinking of cold water when the body is overheated, etc. It often precedes the distinctive eruptions of small-pox and varioloid; and is noticed to be most frequent during the prevalence of measles and scarlatina. The diseases with which it may be confounded are erythema, measles, and scarlatina; and it is sometimes impossible to discriminate with certainty between roseola and very mild cases of scarlatina, when R. is attended with sore throat. The treatment is very simple, as the disease would probably always terminate favorably if left to itself. If there is a suspicion that the case may turn out to be one of scarlatina, an emetic of ipecacuanha should be given, and the bowels should be freely acted on. In ordinary cases, a few days' confinement to the house, a spare and non-stimulating diet, saline laxatives—such as Seidlitz powders—and an occasional warm bath, if there is much cutaneous irritation, or if the eruption has a tendency to recede too suddenly, constitute all the treatment that is expedient.

ROSE QUARTZ: variety of Quartz (q.v.), rarely crystallized in the form of Rock-crystal (q.v.), generally found massive or imperfectly crystallized. It differs from common quartz and rock-crystal chiefly in its color, which is of a delicate rose-pink or flesh color, sometimes crimson or nearly so, and is due to the presence of manganese. R. Q. is valued as an ornamental stone, the larger masses being made into vases, etc., the smaller pieces into jewels, seals, etc. A bright red kind is known as *Bohemian Ruby*, sometimes fraudulently sold as ruby.

ROSES—ROSETTA.

ROSES, WAR OF THE: disastrous civil contest which desolated England 30 years (1455–85), sacrificing 80 princes of the blood and the larger proportion of the ancient nobility of the country. It was so called because the two factions into which the country was divided upheld the two several claims to the throne of the houses of York and Lancaster, whose badges were the white rose for York and the red rose for Lancaster. After the House of Lancaster had possessed the throne three generations (see **PLANTAGENET**), Richard, Duke of York, whose title to the throne was superior to that of Henry VI., advanced, at first somewhat covertly, his claim to the throne. In 1454 he was appointed Protector of the realm during Henry's illness, and on the king's recovery he declined to give up his power, and levied an army to maintain it. For account of the Wars of the Roses, see **EDWARD IV.**: **EDWARD V.**: **RICHARD III.**: **HENRY VI.** The accession of Henry VII. may be said to have terminated the Wars of the Roses, though the reign of Henry was from time to time disturbed by pretensions of Yorkist impostors.

ROSET, n. *rō'zēt* [F. *rosette*, red ink or red chalk—from F. *rose*; L. *rosa*, a rose]: a rose-colored pigment.

ROSETTA, *rō zēt'tā*: city of Egypt, on the w. bank of the old Bolbitic branch of the Nile, about 4 m. above the mouth; 31° 25' n. lat., and 30° 28' 20" e. long. The name is supposed to be an old Egyptian one, derived from *Rusat*, or the mouth of the plains.—Here was discovered the so-called Rosetta Stone, or trilingual inscription in the hieroglyphic, demotic or enchorial,



Rosetta Stone.

and Greek language, by whose aid a key was obtained to the interpretation of the ancient hieroglyphs. It is of black basalt, about 3 ft. 7 inches in length, 2 ft. 6 inches in width, containing about one-third of the hieroglyphic, and nearly all the Greek and Roman portions, the upper part and portion of the side having been broken

away. The contents of the inscription is a decree in honor of Ptolemy Epiphanes by the priests of Egypt assembled in a synod at Memphis, on account of his remission of arrears of taxes and dues owed by the sacerdotal body. It was set up B.C. 195, and is the only one of the numerous examples ordered to be placed which has been brought to light. This monument was discovered 1799 by Boussard, French officer of engineers, during the French occupation of Egypt, in an excavation made at Fort St. Julien, near Rosetta. More recent excavations have shown that it was found on the site of a temple dedicated by the Necho II. of the 26th dynasty to the solar god Atum or Tum.—By the Arabs, the city of R. is called Rashid. It rose into importance when the accumulation of mud had silted up the Damietta branch and destroyed

ROSETTA STONE--ROSEWOOD.

the importance of that city. It has been much praised for its verdure and charming gardens, which present an agreeable contrast to the barren wastes around. The streets are narrow, running n. and s. The river has a sand-bar at the mouth, preventing entrance of large ships-of-war. Pop. (1881) 16,671—of mixed races.

ROSETTA STONE: see ROSETTA.

ROSETTA WOOD: furniture-wood of lively orange-red color, with very dark veins; imported from the E. Indies in logs about 12 inches in diameter; but it is not known what tree produces it. It is little used, because, though extremely beautiful when first cut, the colors become dark by exposure.

ROSETTE, n. *rō-zēt'* [F. *rosette*, a dim. of F. *rose*, a rose—from L. *rosa*, a rose: It. *rosetta*, a rosette]: ribbon arranged in a cluster somewhat like a rose, and used as an ornament or badge; in *arch.*, a rose-like ornament used in decorations; in *bot.*, a cluster of leaves disposed in close circles.

ROSETUM, n. *rō-zēt'ūm* [L. *rosētum*, a rose-garden or bed of roses—from *rosa*, a rose]: a garden or parterre devoted to the cultivation of roses.

ROSEWOOD: name given to the wood of various kinds of trees, valued for beauty, and used for ornamental furniture.—The R. of commerce has been thought to be the product of a species of *Mimosa*, native of Brazil. It was formerly said that R. is the timber of several species of *Triptolomea* (nat. order *Leguminosæ*, sub-order *Papilionaceæ*); but that genus has now been constituted a section of *Dalbergia*; and the trees yielding R. are, in general, still doubtful in botanical classification. Different kinds of R., imported from S. America, are much used for veneering, in making furniture, musical instruments, etc. R. has long been second in popular favor only to mahogany as a furniture-wood. It has a dark blackish-brown color, beautifully streaked with dark red, and when being sawn or cut yields an agreeable smell of roses, from which it receives its name. It is brought chiefly from Para and Maranhão, in logs usually about ten ft. in length; each log is only half the trunk, which is split in two, that the decayed part, always at the centre, may be rejected. Violet-wood and king-wood are from similar trees.—The name R. has been given also to kinds of timber grown in Jamaica, in Africa, and in Burmah. One valuable kind is yielded by an E. Indian tree, *Dalbergia latifolia*, called also *Blackwood*, found chiefly in Malabar, and growing to a height of about 50 ft.: it is of the nat. order *Leguminosæ*, sub-order *Papilionaceæ*. The timber is very valuable, and is much used in Bombay for ornamental furniture. Planks of four ft. in breadth are sometimes obtained, after the sap-wood has been removed. The increasing value of the wood has led to the formation of new plantations, under the govt. conservator of forests, in several parts of the Madras presidency.

ROSICRUCIANS.

ROSICRUCIANS, n. plu. *rō'zī-krō'shī-anz* [L. *ros*, dew; *cru*x or *cru'cem*, a cross—the founder being Brother Christian *Rosenkreuz* (i.e., Rosy Cross)]: alleged secret society of philosophers and alchemists in the 17th c., as famous as it was mysterious. Ro'SICRU'CIAN, a. -*shī-an*, pertaining to the Rosicrucians or their arts.—The name *Rosicrucians* is explained—not with entire satisfactoriness—by Mosheim and others, as from *ros*, dew, and *cru*x, the cross. CRUX is supposed mystically to represent LUX, or light, because the figure + exhibits the three letters LVX; and light, in the opinion of the R., is that which produces gold. Now dew (*ros*) is the greatest solvent of gold, in the ancient alchemy. Near the beginning of the 17th c.—a period of mysticism in science and religion, when alchemy, astrology, and divination divided the public interest with Pietism in the Prot. world, and with the Convulsionist mania in the Rom. Cath. community—two anonymous books appeared, printed Cassel 1614, in German, entitled *Universal and General Reformation of the Whole Wide World*; together with *Fama Fraternitatis, or Brotherhood of the Illustrious Order of the R. C. (Rosy Cross); to the Rulers, States, and Learned of Europe; printed at Cassel, by William Wessel*. The first of these books is a kind of mystic allegory, presenting in the assumed deliberations of the seven wise men of Greece, and three Roman philosophers whom Apollo had called into conference, a satire on the philosophy and the political systems and governments of the age. The other book, *Fama Fraternitatis*, is the story of a certain holy and reverend Brother Christian *Rosenkreuz* (i.e., Rosy Cross), represented as living in the 14th c.; a German of noble birth, educated in a monastery, who conceives a design for reforming the world; and after learning at Jerusalem and Damascus all the science of the Arabians, spends three years at Fez, in Morocco, studying the magical science of the Moors, and returns to Germany, where he establishes, under the title *Sancti Spiritus*, with the aid of seven monks from the convent where he had been educated, a fraternity, the original brotherhood of the Rosy Cross. The story proceeds—that these adepts framed a system with secret symbols, and sent forth Father *Rosenkreuz* to propagate the brotherhood, which was to be kept secret for 100 years, the members, however, meeting once each year in the mother-house of *Sancti Spiritus*. *Rosenkreuz*, the book declared, died at the age of 106, and the place of his burial was held secret by the adepts; but he ordered that an inscription should be placed on one of the doors of *Sancti Spiritus*: 'Post cxx. annos patebo.' In the following year, 1615, a third tract appeared, also in German, entitled *Confessio, or Confession of the Society and Brotherhood R. C.*, which purports to be a defense of the brotherhood from the false rumors in circulation regarding it. The mixture of absurdity with seeming fanaticism in these books, and in some similar tracts subsequent, was long a literary puzzle; but it is now considered solved by the theory that they were merely a serio-comic satire on the philosophical follies of the time, written by Johann Valen-

ROSIERE—RÖSKILDE.

tin Andreæ, of Herrenberg, as a mere exercise of humor, and without intention or expectation of their serious acceptance. The Rosicrucians were not heard of for the rest of the 17th c.; and neither their supposed connection with the Illuminati of Weishaupt at the close of the 18th c., nor their connection with the Templars, is accepted by scholars. A book entitled *Curious Things of the Outside World: Last Fire* (Lond. 1861), aims to give the impression that the Brethren of the Rosy Cross are not yet extinct. See Jennings's *Rosicrucians* (2d ed. 1879).

ROSIERE, n. *rô'zi-ér* [F. *rosier*, a rose-bush—from L. *rosārium*, a rose-garden]: in *OE.*, a rose-bush.

ROSIL, n. *rôs'il*, or ROSSEL, n. *rôs'el* [W. *rhos*, a moor, a waste upland]: in *OE.*, applied to land in consistence between sand and clay. ROSS'ELLY, a. *-ël-lî*, friable.

ROSIN, n. *rôz'in* [another spelling of RESIN, which see]: residuum of turpentine after the oil is distilled off: see RESINS. When common Turpentine (q.v.), obtained from several species of Pine (q.v.) and Fir (q.v.), is distilled with water, it yields nearly one-fourth of its weight of essential oil, while the residue in the retort consists of *common rosin*, or colophony. There are two principal varieties of R., one of which is of brown, the other of white color. The brown variety is furnished by the Norway Spruce Fir, and is an amber-colored brittle solid, consisting of two isomeric acids, the *sylvic* and *pinic*, having the common formula $C_{20}H_{30}O_2$. Pinic acid, the more abundant of the two, is soluble in cold alcohol, from which it is obtained on evaporation as an amorphous mass: when heated to partial decomposition, it yields another isomeric acid, the *colophonie*. The white variety of R., known commercially as *Galipot*, is obtained from the turpentine yielded by *Pinus maritima* (see PINE), and consists almost entirely of an acid, isomeric with the preceding, and termed the *pimaric*. On evaporating its alcoholic solution, the acid is obtained in a semi-crystalline form; and on melting the mass thus obtained, and allowing it to cool, the resulting product is a colorless glass as clear as crystal.—Common R. dissolves freely in alkaline solutions, and enters largely into the formation of yellow soap. The alkaline resinates are in fact soaps, but are inferior in their cleansing properties to the stearates, oleates, and margarates. All the above-described acids of R. are monobasic, soluble in ether and hot alcohol, and insoluble in water. ROSIN, v. to rub or cover with rosin. ROS'INING, imp. ROS'INED, pp. *-ind*. ROS'INY, a. *-in-î*, partaking of the qualities of rosin.

RÖSKILDE, *rôs'kîl-dêh*: town, on the island of Seeland, which belongs to Denmark; about 20 m. s.w. from Copenhagen. It has a port at the head of the Isefiord, and has rail connection with Copenhagen. Previous to 1443 it was the cap., and many of the early kings of Denmark are buried within its limits. Here a treaty of peace was made 1658 after a war between Denmark and Sweden. R. has the most beautiful cathedral in the kingdom.—Pop. 5,221.

ROSMINI-SERBATTI--ROSS

ROSMINI-SERBATTI, *rōs-mē'nē-sēr-bā'tē*, **ANTONIO**: metaphysician: 1797-1855; b. Roveredo, in the Italian Tyrol. From his early years he believed himself called to the priesthood, and on reaching the canonical age was ordained. Later he founded a religious order or congregation—the Institute of Charity; but the brethren (who might be either priests or laymen) were familiarly called Rosminians. R. is author of a complete system of human knowledge, which he has developed in more than 40 vols. He was a profound and original thinker—the peer of the greatest modern philosophers. The most distinctive ground-principles of his system are: 1. That the idea (or intuition) of being enters into all our cognitions, so that without it they were impossible. 2. That this idea is objective. 3. That it is essentially true, inasmuch as 'being' and 'truth' are the same. 4. That in the light of this essentially true idea the mind intellectually discerns, first, the animal body individually conjoined with it, and then, on occasion of the sensations produced in it *not by itself*, discerns the causes of those sensations, i.e., discerns a real, objective world without. 5. As being shines naturally to our mind, it must be what is called the 'light of reason': it is the fundamental principle of all philosophy, the ultimate criterion of truth and certitude. Two of R.'s works have been translated into English: *New Essay on the Origin of Ideas* (London 1884), and *Philosophical System* (London 1882). The latter work is supplemented by a biography of R., catalogue of his writings, etc.; the translation, notes, etc., being the work of Thomas Davidson, a philosopher, for several years past resident in the United States.

ROSOLIC, a. *rō-sō'lik* [L. *rosa*, a rose; *oleum*, oil]: a term applied to an acid. **ROSOLIC ACID**, basis of a permanent blue (red in alkaline solutions) dye ($C_{20}H_{16}O_3$); formed by action of nitrous acid on rosaniline. Formerly R. acid was supposed to be produced by the action of oxalic acid on phenol in the presence of sulphuric acid; but the product of that reaction is not R. acid, but aurin, $C_{19}H_{11}O_3$. R. acid forms ruby-red crystals with greenish lustre; is easily soluble in hot alcohol, moderately soluble in glacial acetic acid and ether, insoluble in benzine and carbon disulphide; water dissolves it slightly, acids a little more freely.

ROSOLIO, n., or **ROSOLIO**, n. *rō-zō'li-ō* [It.]: a liqueur made from essence of vanilla, essence of amber, and oil of roses dissolved in alcohol, to which are added a clear syrup of sugar and water.

ROSS, n. *rōs* [Gael. *ros*, an eruption on the skin, and on the bark of trees]: in *OE.*, the refuse of plants; in *prov. Eng.*, a disease on the bark of trees.

ROSS, *rōs*: thriving market-town in Herefordshire, England, finely situated on the left bank of the Wye, 14 m. s.s.e. of Hereford. In the parish church (date 1316) is buried John Kyrle, celebrated by Pope as 'The Man of Ross' (q.v.). The town has trade in cider, malt, and wool. It is much visited by tourists. Pop. (1891) 3,575.

ROSS: Celtic word, meaning headland; occurring as the name or part of the name of many places in the British Islands and in other parts of Europe, as Roslin, Culross, Rossberg, Ross (in England), Montrose, Roxburgh, Ardrossan. There is another Welsh root, *rhos*, signifying a moor, which is found in Welsh and Cornish names, as Rossall, Rusholme. In Rosness, in Orkney, the equivalent Teutonic term *ness* has been superadded after the meaning of the Celtic *ross* had been lost.

ROSS, *ros*, ALEXANDER MILTON, M.D., F.R.S.I.: naturalist: b. Belleville, Ont., Canada, 1832, Dec. 13. By setting type in a newspaper office, in New York, he paid the expenses of a medical education, was identified with the anti-slavery cause, and in the civil war was in Canada as confidential correspondent of the U. S. govt. He is prof. in a medical college, a member of numerous scientific societies, and has been knighted by several foreign governments. His ornithological and entomological collections are very large and valuable. Among his works are: *Recollections of an Abolitionist* (1867); *Forest Trees of Canada* (1874); *Friendly Words to Boys and Young Men* (1884); *Natural Diet of Man* (1886); and *Medical Practice of the Future* (1887).

ROSS, CHARLEY (in full, CHARLES BREWSTER R.): victim of a mysterious abduction: b. Germantown, Penn., 1870. While playing with an elder brother in front of his father's house, 1874, June, the boys were accosted several times by two men in a buggy who sought their confidence by gifts of candy. July 1, the men reappeared, invited the boys to ride with them, and on reaching Kingston sent the oldest boy to buy fire-crackers. When he returned to the spot where he had left the men and his brother, he found that all had gone. He told his story to a passer-by, who took him to his father. Since then, extraordinary efforts have been made to find Charley, but without success (1891, July). His discovery was reported many times; the abductors demanded \$30,000 for his return; the mayor of Philadelphia offered that sum as a reward for the capture of the boy and his abductors; friends and citizens aided the father with money to keep up the search; and the police, press, and public generally co-operated actively; but all without avail.

ROSS, Sir JAMES CLARK, D.C.L.: Arctic explorer: 1800, Apr. 15—1862, Apr. 3; b. London; nephew of Sir John R. He entered the navy in his 12th year, and served under his uncle in the Baltic, the White Sea, off the coast of Scotland, and in all the naval expeditions for discovery of the Northwest Passage (q.v.) 1818-33. While accompanying his uncle in his second Arctic voyage, he discovered, 1831, the north magnetic pole; and on his return he was rewarded with a post-captaincy. In 1839 he led an expedition to the Antarctic seas (see POLAR EXPEDITIONS), and approached within 160 m. of the south magnetic pole. At his return 1843, he received knighthood; and 1847 he published *Voyage of Discovery in Southern Seas*, 1839-43. In

ROSS.

1848, Jan., he made a voyage in the *Enterprise* to Baffin's Bay, in search of Sir John Franklin, but without success. He received the 'founder's gold medal' from the Geog. Soc. of London 1841, and from Oxford the degree D.C.L.

ROSS, Sir JOHN, C.B.: Arctic voyager: 1777, June 24—1856, Aug. 31; b. Inch, Wigtown, Scotland; son of the Rev. Andrew R. He entered the navy at the early age of 10, was 15 years midshipman, 7 years lieut., 7 years commander, and became post-capt. 1818. When lieut. of the *Surinam*, he was wounded in cutting out a Spanish vessel from under the batteries of Bilbao 1806. His more important services were in the Arctic regions 1818, with Sir W. E. Parry: see NORTHEAST AND NORTHWEST PASSAGES. On a fresh expedition to the Arctic regions 1829, he discovered the peninsula 'Boothia Felix.' At his return, R. received knighthood, and was made C.B. He received the freedom of London and other cities, gold medals from the Geog. Societies of London and Paris, and various other honors. In 1833 he was appointed British consul at Stockholm, where he remained some years. He was author of *Residence in Arctic Regions*, etc. (1829-34), 4to; Appendix to same, 4to; and other works. He became rear-admiral 1851.

ROSS, ROBERT: soldier: about 1770-1814, Sep. 12; b. England. He graduated from Trinity College, Dublin; entered the Brit. army, served in foreign lands, and 1814 came to this country with 3,500 soldiers. With this force, and 1,000 marines from the blockading vessels, he defeated the Americans at Bladensburg and burned the city of Washington 1814, Aug. 24. While on the way to Baltimore with his troops, he was killed.

ROSS, THE MAN OF: name given by Pope to John Kyrle English gentleman of great benevolence: b. Whitehouse, Gloucestershire, in the first half of the 17th c.; d. 1724. Kyrle received his appellation from having resided during the greater part of his life in the small town of Ross, Herefordshire. He there spent his time and fortune in building churches and hospitals, which procured for him the love and veneration of his contemporaries. Kyrle may be considered the Howard of his age. Pope in his *Moral Essays* celebrates his praises under the name of The Man of Ross:

'Behold the market-place with poor o'erspread!
The Man of Ross divides the weekly bread:
He feeds yon almshouse, neat, but void of state,
Where age and want sit smiling at the gate:
Him portioned maids, apprenticed orphans blessed,
The young who labour, and the old who rest.'

We learn further, from the same poem, that the fortune of Kyrle was no more than £500 a year.

ROSSA—ROSSANO.

ROSSA, *rōs'sa*, **JEREMIAH O'DONOVAN**: Irish revolutionist: b. Ross-Carbery, co. Cork, 1831, Sep. With his widowed mother, two brothers, and a sister, R. was evicted from their farm 1847: all the family emigrated to America, except R. He was one of the originators of the Phœnix Soc., and as such was imprisoned 1856, Dec.—1859, Aug. He became manager of James Stephens's paper, *Irish People*, in Dublin 1863, and labored diligently in organizing revolutionary clubs in the three kingdoms. He visited the United States 1863 and 65. The *Irish People* office was raided by the police 1865, Sep., and R. was arrested on charge of treason-felony. A packed jury, instructed by a hostile bench, found R. 'guilty.' Asked 'what he had to say,' etc., R. said his one offense was that he was born an Irishman. Sentence: imprisonment for life. He was released 1871, Jan., on condition of quitting the United Kingdom and not returning for 20 years. He has since lived in the United States, ever contriving means of liberating Ireland. He has been a prisoner in 11 prisons—viz., Skibbereen, Bandon, Cork, Dublin, Richmond, Kilmainham, and Mountjoy, in Ireland; and Pentonville, Portland, Millbank, and Chatham, in England. He has written some poems of more than ordinary merit. He has written *Prison Life*. He is ed. of the *United Irishman*, newspaper, New York. —His wife, **HANORA (EAGAR) O'DONOVAN R.**, has much talent as an elocutionist, and, for a year or two before R.'s release from prison, supported her children by giving public readings.

ROSSANENSIS, *rōs-sâ-nĕn'sis*, **CODEx**: manuscript of the gospels of Matthew and Mark, complete except the last 6 verses of Mark; named from Rossano, a city of s. Italy, in the cathedral of which the codex is preserved. For various reasons, its date is referred to the 6th c. It is in uncial letters of silver on fine purple vellum, the first three lines of both columns in gold, at the beginning of each chapter. Its sections are numbered on the plan of Eusebius of Cæsarea. Scenes in the gospel narrative in water-colors, and 40 figures of the prophets, embellish its 118 leaves. The text resembles that of another purple vellum, Codex N, of the same century, and agrees with MSS. of the 6th c. rather than with the Sinaitic and oldest Vatican, both of the 4th c., where differences exist. It was discovered 1879, and is the subject of a volume, with some fac-similes, by Dr. Gebhardt of Göttingen and Prof. Harnack of Giessen (1880).

ROSSANO, *rōs-sâ'nō*: city of s. Italy, province of Co-senza, at the foot of the Apennines, 2 m. from the Gulf of Taranto, on a high rocky hill, surrounded by precipices. It is walled and well built, is defended by a castle, and contains a beautiful cathedral, inlaid with carved marbles. Its fields are very fertile, producing grapes and lemons. R. was laid waste by Totila, King of the Goths. Pop. 15,000.

ROSSBACH--ROSS AND CROMARTY.

ROSSBACH, *ròs' bách*: village in Prussian Saxony, govt. of Merseburg, 8 m. s.w. of the city of Merseburg. It is famous for the victory here gained by the Prussians under Frederick the Great over the combined French and Imperialist armies 1757, Nov. 5. A short time previously, Frederick had been compelled to leave the bulk of his army in Silesia under the Duke of Brunswick-Bevern, to check the Austrians on this side, and hastened with 22,000 men to oppose the invasion from the west. The Prince of Soubise (one of the 'amateur' French generals of the period), who was at the head of the confederate army of 60,000 men, thinking from Frederick's cautious manœuvres that he was terrified and desirous of retreating, at once charged forward with his cavalry, and left his columns at the mercy of Gen. Seidlitz, who attacked them in front and flank with the whole Prussian cavalry and artillery. The confederates were speedily thrown into utter disorder, and, being charged in front by the Prussian infantry under Prince Henry, their rout was complete. The 'rout of Rossbach' was so disgraceful that it long remained proverbial in the French army. The Prussians lost (according to a French account) only 300 men, while the loss of the allies was more than 1,200 slain; 6,000 prisoners, among whom were 11 generals and 300 officers; and 72 cannon, with many other trophies.

ROSS AND CROMARTY, *ròs and kròm'ér-tì*: two counties in Scotland, treated in the 'Census of Scotland—1881' as one county. As such, it is bounded n. by Sutherlandshire, e. by the German Ocean, s. by Inverness-shire, w. by the Atlantic. Ross comprises the districts of Easter and Wester Ross, Ardmeanach, or the Black Isle, and the Island of Lewis (see LEWIS-WITH-HARRIS). R. and C. are wild and mountainous, intersected by beautiful glens, valleys, lakes, and rivers. Many of the mountains are of considerable altitude, the highest ranging from 3,000 to 3,862 ft., the most remarkable being Ben Wyvis. The high grounds afford excellent pasture for sheep and cattle; and the glens and low grounds, in the more favored portions, have generally good soil, which, with the fine climate, especially in Easter Ross, produces grain of superior quality. There are numerous fresh-water lakes and rivers. The principal loch is Maree (q.v.). There are other considerable lakes, altogether occupying 90 sq. m. There are numerous water-courses; and the cataract of Glomach is one of the finest in the kingdom. Limestone and ironstone are abundant, as also granite and mica slate; and there are various mineral springs of note, the most famous being that of Strathpeffer. About the beginning of the 18th c. the country in many places was nearly devoid of trees; but numerous plantations were formed, and many parts now bear extensive forests. The lakes, rivers, and coast abound with fish; and in the numerous bays and sea-lochs the fishery is extensive, occupying more than 17,000 persons.

The area of the two counties is 3,248 sq. m., or 2,078,896 statute acres. The valued rental 1674 was £7,000; the valuation of 1880-1 (exclusive of railways) was £283,730.

ROSSE—ROSSEL.

Total acreage under all kinds of crops, bare fallow, and grass (1880), 131,558; under corn crops, 48,470; under green crops, 27,540; clover, sanfoin, and grasses under rotation, 36,763; permanent pasture, exclusive of heath and mountain-land, 17,836. The number of horses used for agricultural purposes was, in the same year, 7,400; cattle 42,735; sheep 361,236; pigs 5,631.—The chief towns are Dingwall (q.v.), Fortrose (q.v.), and Tain (q.v.).—Pop. of the two united shires (1891) 77,751; (1901) 76,450.

ROSSE, *rōs*, WILLIAM PARSONS, third Earl of: practical astronomer, and constructor of telescopes: 1800, June 17—1867, Oct. 31; b. York. He was educated at Trinity College, Dublin; and afterward at Magdalen College, Oxford, where he graduated first-class in mathematics 1822. During the life of his father, he sat in the house of commons as Lord Oxmantown 1821–31; he succeeded to the peerage 1841, and was elected a representative peer for Ireland 1845. At an early age R. had studied practical science, especially the improvement of the telescope; and in 1826 had begun experiments in construction of fluid lenses (see *Philosophical Transactions*, 1840), but, relinquishing those investigations, he turned to the problem of the best mode of constructing the speculum of the reflecting telescope. The two great defects which had baffled opticians were ‘spherical aberration’ and absorption of light by specula; and in the casting of specula of large size, there was the apparent impossibility of preventing cracking and warping of the surface on cooling. By a long series of careful experiments, he discovered a mode by which the last defect was wholly obviated, and the two others greatly diminished. The metal for the speculum of his great telescope (see TELESCOPE), three tons’ weight, was poured into the iron mold 1842, Apr., the crucibles being lifted and emptied by means of cranes; and the mold was kept in an annealing oven 16 weeks, so that the metal should cool equably. It was then polished and mounted in his park at Parsonstown, at a cost of £30,000, the adjustments consisting of a system of chains, pulleys, and counterpoising weights, so complete in all its parts that the ponderous instrument of 12 tons’ weight can be moved to point in any direction, with almost as much precision as the ordinary equatorial of the observatory. The first addition to the body of astronomical knowledge made by this telescope was the resolution of certain nebulae, which had defied Herschel’s instrument into groups of stars; next came the discovery of numerous binary and trinary stars, and a description of the moon’s surface. This telescope, constructed under R.’s personal directions, is described in *Philosophical Transactions*. A statue to Lord R.’s memory was erected in Parsonstown 1876.

ROSSEL: see ROSIL.

ROSSELLINO.

ROSSELLINO, *rös-sël-lē'nō*, **ANTONIO**: Florentine sculptor: about 1427-79. He belonged to a family noted for artistic taste and skill. Little is known of his life, but some of his works have been preserved. They indicate a strong and fine religious nature and show remarkable skill in execution of beautiful designs. One of his principal works is the tomb of a Portuguese prince in a chapel of the church of San Miniato. Another tomb, of almost equal beauty, is in one of the churches of Naples; and some smaller works exist, which, like his more elaborate productions, show great delicacy.

ROSSELLINO, **BERNARDO**: sculptor and architect: 1409-64. As a sculptor, he was considered equal to his bro. Antonio R. (q.v.); and he became famous equally as architect. His best work in sculpture is in the tomb of Leonardo Bruni, Florentine historian, and in the fine reliefs on the pulpit in the cathedral at Prato. As an architect, he designed many fine buildings, and restored churches and other structures at Rome and elsewhere. He was noted also as a milit. engineer, in which capacity he built the walls and fortifications around several cities.

ROSSETTI.

ROSSETTI, CHRISTINA GEORGINA: English poet: 1830, Dec. 5—1894, Dec. 29; b. London; sister of Dante Gabriel and William Michael R. She began writing verse in early girlhood, and before her 17th year a small volume of her poetry was privately printed by her maternal grandfather in London, the contents of which foreshadowed the genius that was destined to rank her with her elder brother as a mystical, soulful, and felicitous writer. She lived a life of deep but not morbid seclusion, devoting herself to family affections—chiefly to the care of her invalid mother, who died 1886—and earnest religious thought and practice. Her principal publications are: *The Goblin Market, and Other Poems* (1862); *The Prince's Progress, and Other Poems* (1866); *Commonplace, and Other Stories*, prose (1870); *Sing-Song*, nursery rhymes (1872); *Speaking Likenesses*; (1874); *Annus Domini*, a prayer fitting a text for each day of the year (1874); *Seek and Find, and Called to be Saints* (1881); *Letter and Spirit* (1883); *Time Flies* (1886); and *The Face of the Deep* (1892). In 1896 a vol. of her verse, entitled *New Poems*, was posthumously edited and published by her brother William Michael.

ROSSETTI, DANTE GABRIEL (full baptismal name **GABRIELE CHARLES DANTE**): thoughtful and powerful painter, graceful poet, and elegant translator of early Italian poetry: 1828, May 12—1882, Apr. 9; b. London; eldest son of Gabriele R. He was educated at King's College, London. As a painter, he was more discussed by critics than popularly known; probably because his works were transferred into private collections as soon as they left his studio, without the publicity of exhibition. Although he never exhibited at the 'Royal Acad.,' his pictures were occasionally sent by their fortunate proprietors to various public picture-galleries. Of these, his *Fair Rosamond*, pervaded by earnest thought, and treated in a powerful, though strikingly unconventional, manner, was exhibited in the galleries of the Royal Scottish Acad. 1860-1. Of his other pictures, among the chief are *Dante's Dream*, *Ecce Ancilla Domini*, and *Beatrice Dead*. He contributed some fine drawings to an illustrated edition of Tennyson, which, though inadequately engraved, rank among the first of modern woodcuts. These, like everything that this artist produced, are strongly imbued with the spirit of the Romantic period (see **ROMANTIC SCHOOL**), but at its best, and according to its most pure ideal. R.'s name was brought prominently forward first by his association with Millais and Holman Hunt in the 'Pre-Raphaelite Brotherhood' (see **PRE-RAPHAELITISM**). While time and experience modified the practice of some of the original Pre-Raphaelites, R.'s pictures displayed to the last the peculiarities of earlier days.—As author, R. is well known by his translations of the *Early Italian Poets from Ciullo d'Alcamo to Dante Alighieri* (1100-1200-1300); pub. 1861. With his brother WILLIAM, he edited Gilchrist's *Life of William Blake, Pictor Ignotus* (Lond. 1863), left incomplete at the death of the compiler. *Poems* (1870), new ed., with additions (1881), added to R.'s reputation. His *Ballads*

ROSSETTI—ROSSI.

and *Sonnets* (1881) heightened and extended this reputation and were received by the critics with almost unanimous applause. Favorite among his poems are *The Blessed Damozel*, *Sister Helen*, *Rose Mary*.

R. was not only painter and author, but a man of thorough acquaintance with and high accomplishment in applied and decorative art. He bore a distinguished part in the resuscitation of Gothic art in England, both ecclesiastical and domestic. Above and pervading his other attractions was a character loyal and true, with a most winning personality. See Caine's *Recollections of Rossetti* (1882).

ROSSETTI, *ros-sét'ti*, GABRIELE: Italian author: 1783-1854; b. Vasto, Italy. He came to England as a political refugee 1824. Two years afterward he published the *Comento Analitico* on the *Divina Commedia* of Dante, in which he aimed to show that in the middle ages all the poets used a jargon under which they veiled their hatred of the papacy, and concealed the true religion under the form of a woman beloved by them. In conducting this argument, he displayed amazing erudition. His eccentric views excited hostile criticism, and R. replied with three books: these writings, though not accepted as convincing, have at least founded a new school of interpretation of Dante; and in Italy his partizans are numerous. He was prof. of Italian lit. in King's College, London. In England R. married Frances Mary Lavinia Polidori, of a family known in literature—an Italian lady of partly English extraction. He died in London.

ROSSETTI, WILLIAM MICHAEL: literary and art critic: b. London, 1829, Sep. 25; bro. of Dante Gabriel R. He was educated at King's Coll. School. He holds a place under the govt. He has translated Dante's *Inferno*; has edited the works of Shelley, with memoir; a series of *Lives of Famous Poets*; and many of the works published by the Early English Text Soc. and the Chaucer Soc. In 1850 he edited the organ of the Pre-Raphaelite school.—CHRISTINA GEORGINA R., a sister of Dante Gabriel R. (b. 1830, Dec. 5), is author of several poems and prose stories, among them *Goblin Market, and Other Poems* (1862); *The Prince's Progress, and Other Poems* (1866). Her later writings are mostly of a religious cast, as *Seek and Find; Called to Be Saints; Letter and Spirit*.—Another sister, MARIA FRANCESCA R. (1827-76), was author of an able study of Dante.

ROSSI, *rös'sē*, GIOVANNI BATTISTA DE: archeologist: b. Rome, 1822, Feb. 23—1894, Sep. 20: studied in the College of Rome, applied himself to the study of archeology and of the inscriptions of the first centuries of the Rom. Church, and won wide repute by his discoveries in the catacombs of Rome. He is pres. of the Pontifical Acad. of Archeology, a director of the German Archeological Institute in Rome, corr. member of the Berlin Acad. of Sciences, and member of the French Institute. He published collections of inscriptions and other archeological works 1857-61, 64-77, 76-85, 79, and 82

ROSSI—ROSSINI.

ROSSI, *ros'sē*, PELLEGRINO: 1787-1848, Nov. 15; b. Carrara, Italy; of noble family. He studied at Bologna, and at 25 years of age was appointed prof. of law in that univ. On the fall of King Murat, R. took refuge at Geneva, where he was appointed prof. of the science of law. There he published *Le Droit Pénal*, which made him famous in France; and 1833, Louis Philippe appointed him prof. of polit. economy at Paris. R. was sent to Rome as French ambassador 1845. Becoming again an Italian subject, he was called to the ministry by Pius IX.; and devised a confederation of Italian princes, with the pope as their pres. This roused the hatred of the Romans, and R. was stabbed to death by an unknown hand. After his death his unedited writings were published in Paris at the expense of the Italian government.

ROSSIENA, *rös-sē-ä'nä*: town of European Russia, govt. of Kovno, on the Dubitzá, a branch of the Niemen, 66 m. n.w. of Kovno. Under the Polish govt. it was cap. of Samogitia. Pop. (1880) 11,109.

ROSSINI, *ros-sē'nē*, GIOACHINO ANTONIO: greatest composer of the 19th c. for the Italian lyrical stage: 1792, Feb. 29—1868, Nov. 13; b. Pesaro, Italy; son of a horn-player in an orchestra of strolling players. At the age of 15 his talent was discovered by Countess Perticari, who sent him to study at Bologna. He was, however, principally self-taught, giving days and nights to the great Italian and German masters. His first important opera was *Tancredi*, performed first in Venice 1813, exciting extraordinary sensation throughout the musical world, and raising its composer at once to fame. It was followed by *L'Italiana in Algeri* (1813), *Il Turco in Italia* (1814), and *Aureliano in Palmira* (1814), all inferior to *Tancredi*. In 1815 R. was appointed musical-director of the theatre of San Carlo at Naples. *Il Barbiere di Siviglia*, most popular of all his works, was produced at Rome 1816, and was said to have been composed in 20 days; it was followed by *Otello* the same year; and 1817 appeared *La Cenerentola* at Rome, and *La Gazza ladra* at Naples. From this time to the close of R.'s engagement at Naples 1823, he wrote the operas *Mosè in Egitto*, *La Donna del Lago*, *Maometto Secondo* (otherwise known as *L'Assedio di Corinto*) and *Zelmira*. In 1823, he produced *Semiramide*, most gorgeous of his operas, at Venice, and soon afterward left Italy. He visited London, where he was received with great enthusiasm. At Paris, he received from Charles X. the appointment of director of the Italian Opera; and while there composed *Guillaume Tell* (1829), which, though ill-constructed as a drama, ranks musically as high as any of his works. When the revolution of 1830 broke out, R. lost the management of the Italian Opera. In 1836 he returned to Italy, where principally he resided till 1855. With *Guillaume Tell* he may be said to have closed his career, except that after it he composed his well-known *Stabat Mater*, a pretty and popular work, more secular than sacred. His statue was inaugurated at Pesaro 1864. R.'s

ROSSITER—ROSTOCK.

early works are of the established Italian type, though originally developed, with stirring melody, brilliant instrumentation, and enjoyable vivacity. *Guillaume Tell*, equally original, approaches the German school. Prized as R.'s music still is, only five of his 40 operas have kept the stage, *Il Barbiere*, *Otello*, *La Gazza ladra*, *Semiramide*, and *Guillaume Tell*. He died in Paris. See Life by Edwards (Lond. 1869).

ROSSITER, *rŏs'sī-tēr*, THOMAS PRITCHARD: scriptural and historical painter: 1817, Sep. 29—1871, May 17; b. New Haven, Conn. He was a pupil of Jocelyn, and opened a studio in New Haven 1838, but was a resident of New York after spending 6 years abroad 1840–46, and again 3 years 1853–56. After 1860, he lived at Cold Spring, N. Y., until his death. He became an academician 1849, and received gold medals in exhibitions at Paris 1855. His works were highly regarded, excelling especially in color. Besides numerous portraits, he painted such subjects as the *Return of the Dove to the Ark*, *The Wise and Foolish Virgins*, a series of scenes in the life of Christ, *Venice in the Fifteenth Century*, *The Home of Washington*, and *Washington's First Cabinet*.

ROSSO ANTICO, *rŏs'ō ān-tē'kō*: technical name for the red porphyry of Egypt. It consists of a red felspathic base, in which are dispersed rose-colored crystals of oligoclase with some plates of hornblende, and grains of oxidized iron ore. The name is often given to a red variegated marble of Italy.

ROSTEL, n. *rŏs'tēl*, or ROSTELLUM, n. *rŏs-tēl'lŭm* [L. *rostellum*, a little beak—from *rostrum*, a beak, a bill]: in bot., that part of the heart of a seed which descends and becomes the root; an extension of the upper edge of the stigma in some orchids; in anat., a beak-shaped process. ROS'TELLATE, a. -lāt, having a small beak. ROSTELLIFORM, a. *rŏs-tēl'li-farŏm* [L. *forma*, shape]: beak-shaped; having the form of a rostel.

ROSTER, n. *rŏs'tēr* [etym. doubtful: perhaps a corruption of *register*, which see: more probably a contracted form of *rollster*—from *roll*, a list]: tabular form showing the order or rotation of officers, soldiers, or regiments for any service or duty; a list or muster-roll.

ROSTOCK, *rŏs'tŏk*: most important town and seaport of the grand duchy of Mecklenburg-Schwerin; in a flat fruitful district on the Warnow, 9 m. from the mouth of that river in the Baltic, and 55 m. n.e. of Schwerin. R. consists of the city proper and of extensive suburbs outside the line of the old ramparts, now promenades. The university, founded 1419, has more than 40 professors and lecturers, 250 students, and a library of 135,000 vols. The handsome new univ. building is a Renaissance structure in brick. In St. Mary's Church, a large building dating from the 13th c., and possessing one of the finest organs in Germany, is the tomb of Grotius. St. Peter's, dating from the 12th c., has a tower 420 ft. high. There are several squares, some containing monuments or statues.

ROSTOFF—ROSTOPCHINE.

Manufactures of linen and tobacco, and tanning, brewing, and distilling, are carried on. Between 700 and 800 vessels annually enter the port with cargoes: exports are chiefly wheat, barley, oil-cakes, and cattle-bones to Great Britain; imports are coals, salt, iron, limestone, herrings, and other provisions, timber, etc. At the mouth of the Warnow is Warnemünde, the port of R., at which all vessels drawing more than 10 ft. load and unload.—R. is of Slavic origin, and a shadowy glimpse of it is got in the 11th or 12th c., but the progress of commerce and other causes, chiefly political, rapidly Germanized it, and 1218 it figures as wholly German. It was a member for centuries of the old Hanseatic League, long ranked in importance with Lübeck, and still holds to a remarkable extent its ancient privileges—the municipal constitution of the town being even yet almost wholly republican.—Pop. (1900) 54,735.

ROSTOFF, *rŏs-tŏf'*: town of European Russia, one of the most ancient in the empire; in the govt. of Jaroslav, on the banks of Lake Nero or Rostofsky. An important fair is held here; and there is flourishing commerce. R. contains numerous factories, the chief manufacture being that of linen. Pop. (1880) 10,000; (1891) 17,232.

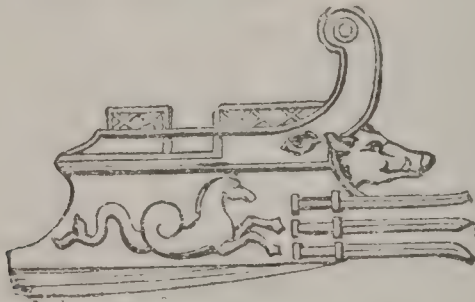
ROSTOFF' ON LAKE NERO, *nă'rŏ*: district town of Russia, govt. of Yaroslavl, 35 m. by rail s.w. of Yaroslavl; probably the oldest town in n.e. Russia. Pop. (1883) 12,500.

ROSTOFF' ON THE DON: district town and ferry of s. Russia, govt. of Ekaterinoslav, high on the right bank, and at the head of the delta, of the river Don. It owes its origin to the transfer of a fortress to this site 1761, and the definite Russian occupation of the Black Sea coast, since which time its progress, aided by its advantageous situation, has been so great that it is now the centre of trade in s. Russia. The export of corn, oil-seeds, wool, tallow, butter, iron, hides, ropes, coarse linen, pitch, etc., was in value (1865) 12,311,000 roubles = \$7,595,887; (1882) 41,634,252 roubles = \$25,688,332. Manufactures are carried on with activity in 22 factories, the principal products being cast-iron, bricks, ropes, tobacco, maccaroni, soap, and leather. Railway communication with Vladikaukas in Caucasia was opened 1875. Pop. (1897) 119,889.

ROSTOPCHINE, *ros-top-chên'*, **FEODOR VASSILEVITCH**, Count: Russian general: 1765, Mar. 23—1826, Jan. 30; b. in the province of Oran; directly descended from Gen ghiz Khan. He entered the Russian milit. service as a lieut. in the imperial guard. Having the good fortune to be the first messenger to Paul of his accession to the throne, he was immediately (1796) created general; and successively grand-marshal of the court, minister of foreign affairs, count (1799), and chevalier of all the Russian orders. R. possessed extraordinary influence over the half-witted monarch, and succeeded in preventing his vagaries from seriously affecting the government or religion of the empire; but he was repeatedly banished from court and almost immediately recalled, and it was during the last

of these banishments (to Moscow) that the czar was murdered. Emperor Alexander seems to have disliked R., for he remained in banishment till 1812, May, when the emperor, having need of the services of all his subjects, appointed R. gov. of Moscow. On the approach of Napoleon's army, R., by extraordinary exertions, raised an army of 122,000 men fully equipped, but to his great chagrin was ordered to evacuate Moscow. R. has been unanimously branded by the French writers as the burner of Moscow, and for a long time this was generally credited, till, 1823, he published *La Vérité sur l'Incendie de Moscou* (Paris 1823), in which he rebuts the charge, affirming that this barbarous action was due in part to the fervid patriotism of a few of the inhabitants, and in part to the violence and negligence of the French. At the same time, he showed that the damage to Moscow was much less than the estimate by French and English writers. R. certainly set fire to his own mansion in the neighborhood, but no other act of incendiarism has been proved against him. Count R. resided in Paris 1817-25; then returned to Russia and died in Moscow. His daughter-in-law, Countess EUDOXIA R., is considered one of the first poets of Russia. R.'s works, which include historical memoirs, comedies, etc., in Russian and French, were collected and pub. at St. Petersburg 1853.

ROSTRAL, a. *rōs'tral* [L. *rostrum*, the bill, snout, or muzzle of animals, a ship's beak—from *rodo*, I gnaw: It. *rostri*; F. *rostres*, a rostrum]: pertaining to a beak; resembling the beak of a ship. ROS'TRATE, a. *-trāt* [L. *rostrātus*, beaked, curved], or ROS'TRATED, a. having a process resembling the beak of a bird; in *bot.*, furnished with beaks; having a long sharp point. ROS'TRUM, n. *-trūm* [L.]: the beak or bill of a bird, or anything resembling it; the prow of a ship; in *anc. Rome*, an erection for speakers in the



Prow of Ancient Galley Armed with the Rostrum.

Forum—so called from its being adorned with the beaks of an enemy's ships; a platform or pulpit from which a speaker may address an audience. ROSTRIFORM, a. *rōs'trī-fōrm* [L. *forma*, a shape]: beak-shaped.

ROSTRULUM, n. *rōs'trū-lūm* [L. *rostrum*, a beak]: *literally*, a little beak; in *entom.*, the name of the sucking apparatus or proboscis of the flea and like insects.

ROSTRUM: see under ROSTRAL.

ROSY: see under ROSE.

ROT, *v.* *röt* [Icel. *rotna*; Sw. *ruttna*, to decay, to fall off: Dut. *rot*; Icel. *rotinn*, rotten: AS. *rotian*, to putrefy]: to putrefy or decay; to be decomposed; to make putrid; to bring to corruption: N. putrid decay; fatal distemper peculiar to sheep (see below). ROT'TING, *imp.*: ADJ. decomposing wholly or partially. ROT'TED, *pt.*: ADJ. decomposed wholly or partially; affected with rot. ROTTEN, *pp.* *röt'n*: ADJ. putrid; corrupt; decomposed by the natural process of decay; having some defect in principle; treacherous. ROT'TENLY, *ad.* *-lī*. ROT'TENNESS, *n.* *-nēs*, the state of being rotten; putrefaction; unsoundness. DRY-ROT: see under DRY.—SYN. of 'rot, *v.*': to putrefy; corrupt; decay; spoil:—of 'rotten': putrefied; corrupt; putrid; decayed; unsound; defective; treacherous; deceitful.

ROT: malignant distemper most frequent among sheep, but also occasionally attacking rabbits, hares, deer, and cattle. It consists in the maturation within the liver and biliary ducts of an entozoon, the *Distoma hepaticum*, or Fluke (q.v.). In Great Britain, and some other countries, it causes enormous losses, but it seldom appears in the United States. The liver is first affected, but the disease soon extends to the lungs and kidney, and at a later stage assumes a dropsical form. Among the symptoms are thirst, blue color of the skin, diarrhoea, and general depression. The disease is most prevalent in autumn and early winter, is far more common in warm and wet seasons, and is principally confined to animals kept on low, undrained, or occasionally overflowed pastures; which drink from stagnant pools; or which are fed on hay grown on marshy soils. Preventive measures are thorough draining of the soil, supplying the animals with pure water, and giving them free access to salt. The indications of disease appear in 2 to 7 weeks after the work of the parasite is commenced. Turpentine is sometimes given with benefit in the early stages of the disorder, but, as a rule, remedial measures are of no avail. As the flesh is not apparently injured till degeneration of the liver commences, it is customary for farmers in whose flocks this disease appears to sell to the butcher immediately all the animals fit for food.

ROTA, *n.* *rō'ta* [L. *rota*, a wheel]: turn in succession; the roll or list to be selected from by turn or in succession.

ROTA, *n.* *rō'ta*: in the *Rom. Chh.*, a tribunal within the Curia, formerly the supreme court of justice and the universal court of appeal. These functions are now otherwise assigned.

ROTA, *rō'tā*: town of Spain, province of Cadiz, six m. n n w. from Cadiz, on the opposite side of the entrance of Cadiz Bay. Rota wine has some celebrity, and is sent to the British market.—Pop. 8,000.

ROTACISM, *n.* *rō'ta-sizm* [Gr. *rotakismos*]: an exaggerated pronunciation of the letter *r*, produced by trilling the extremity of the soft palate against back part of tongue.

ROTANG, *n.* *rō-tāng*: see RATAN.

ROTARY: see under ROTATE.

ROTATE, v. *rō-tāt'* [L. *rotātus*, whirled round; *rotārē*, to whirl—from *rota*, a wheel: It. *rotare*, to rotate: Gael. *roth*, a wheel]: to move round a centre or axis, like a wheel: **ADJ.** in *bot.*, applied to a gamopetalous corolla, having a very short tube, and the limb spreading out more or less at right angles; wheel-shaped. **ROTA'TING**, imp. **ROTA'TED**, pp. **ROTA'TION**, n. *-tā'shūn*, the act of turning a wheel or other body on its axis; the state of being whirled round (see below): vicissitude; established succession; in *anat.*, the revolving motion of a bone round its axis; in *bot.*, the internal circulation of the fluids in the cells of plants. **ROTATE-PLANE**, or **ROTATO-PLANE**, a. in *bot.*, wheel-shaped and flat, without a tube. **ROTATOR**, n. *rō-tā'tēr*, that which gives a circular or rolling motion—applied to certain muscles of the body. **ROTATORY**, a. *rō'ta-tēr-ī*, going in a circle; moving in succession. **RO'TA-TO'RIA**, n. plu. *-tō'rī-a*, or **RO'TATORIES**, n. plu. *-iz*, the wheel-animalcules or rotifers, so called from their circles of cilia, which under the microscope appear like revolving wheels (see below). **ROTARY**, a. *rō'tēr-ī*, turning on an axis, as a wheel; whirling. **ROTARY ENGINE**, a steam-engine in which is produced a continuous motion round an axis, by the direct action of steam.



Rotate Corolla.

ROTA'TION (L. *rota*): state of being turned around. There is, perhaps, no elementary idea which has been the subject of so much popular misconception as that of R. This is due, probably, to the vagueness of the usual definitions.

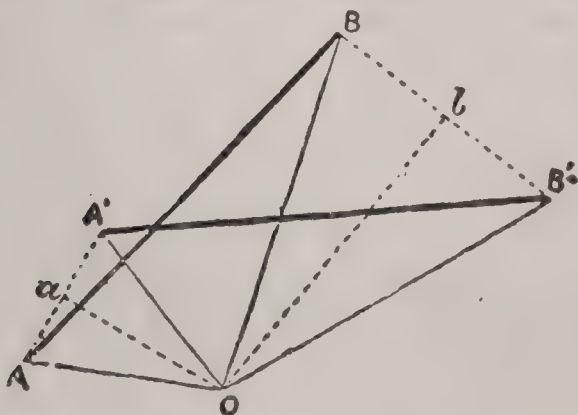
All motion that we can observe is *relative*—e.g., any fixed object on the earth's surface has a certain motion *relative* to the earth's axis, in consequence of the diurnal R.; the earth itself has a certain motion *relative* to the sun, in consequence of its annual revolution; the sun has a certain motion *relative* to the so-called fixed stars; and it is possible that the whole stellar system may have a motion *relative* to something in space beyond its boundaries. Now, the motion of an object on the earth's surface differs according to the way it is measured: a passenger sitting in a railway-carriage is *at rest* if his motion *relative* to the carriage be considered; he has the same motion as the carriage if it be measured *relative* to the rails; and if the carriage were running from e. to w. along a parallel of latitude, so as to complete the circuit in 24 hours, he would be at rest relative to the earth's axis. If, therefore, we wish to talk of *absolute* motion, it must be measured *relative* to **FIXED** points or directions; and in the violation of this obvious condition lies the most common error. Thus, to show that the earth rotates about its axis, we may observe its motion relative to the line joining it with the moon; and we observe that the moon comes to the meridian at intervals of (roughly) 25 hours. Does the earth rotate in 25 hours? We know that it does not, and the error

ROTATION.

consists in treating as an *absolute* R. a R. measured relative to a line—that joining the earth and moon—which is itself turning. If we take the intervals of the sun's crossing the meridian, we find 24 hours—a much closer approximation; but still not exact, because our line of reference—that joining the earth and sun—is slowly turning. Would we have an absolute measure, we must choose a *fixed* line, or one so nearly fixed that its motion is absolutely insensible. Such is the line joining any fixed star with the earth, and the time of the earth's *absolute* rotation on its axis is 23 h. 56 min. 4.09 s.—the interval between culminations of the same fixed star. The difference between absolute and relative R. in any planet gives rise to the difference between the *sidereal* and the *solar* day; and the planet's year contains just *one* more of the former than of the latter.

Now, suppose for a moment that the earth were to revolve only $\frac{1}{366}$ part as fast as it now does, there would be *one sidereal* day in the year, and there would be *no solar* day at all—in other words, there would be *no* R. of the earth with reference to the line joining it with the sun; that is, the earth would turn always the same side to the sun; yet it would be *absolutely* rotating about its axis once in a year. This is the case which we observe in the moon's motion relative to the earth, and we see at once that the moon must rotate *absolutely*—that is, with reference to fixed directions in space—in the exact time in which she completes one revolution about the earth. Those who say the moon does not rotate on her axis make precisely the same mistake as those who fancied that the earth is immovable, and that moon, sun, and stars revolve about it every day. There is a physical cause for this peculiarity in the moon's motion, which leads to very important consequences with reference to the future of the solar system: see **TIDES.**

Several elementary theorems regarding rotation may now be enunciated; but the proofs, though very simple, will be given merely in outline. Any displacement



whatever given to a plane figure in its own plane—as to a sheet of paper lying on a table—is equivalent to a single rotation about a definite axis. Let A, B be any two points of the figure, and let them be displaced to

A' , B' , respectively. Join AA' , BB' , and bisect them in a and b by perpendiculars meeting in O . Then it is easy to show that (1) $OA' = OA$, $OB' = OB$, and therefore O is the *same* point of the plane figure in its first and second positions; (2) $\angle AOA' = \angle BOB'$, and is therefore the angle through which the whole has turned about the point O . If AA' and BB' are parallel, this construction fails; but in this case, if AB and $A'B'$ do *not* intersect, the motion is simply one of translation: if they *do* intersect, the point of intersection is the axis.

Any number of successive rotations about different points constitute, of course, a displacement, and are therefore reducible to one rotation.

Two equal and opposite rotations about different points give rise to a mere translation.

The first two of these propositions are true of figures on a sphere as well as on a plane surface; for the figure above has only to be drawn with great circles instead of straight lines, and the proof applies letter for letter; only, here, the first case of exception cannot occur, because two great circles *must* intersect. Hence it follows that, if the centre of a sphere be fixed, any displacement whatever is equivalent to a rotation about some axis; that is, after any motion whatever of a rigid body, one point of which is fixed, there is always *one* line of particles which remains undisturbed. (This simple proposition has been found very hard to believe, even by men of considerable intelligence.) Hence rotations about any number of axes passing through the same fixed point may be compounded into one; and, generally, any motion whatever of a rigid body may be decomposed into two, one of which is a motion of translation of some chosen point, and the other rotation about some axis through that point. Thus, in the case of the moon, we have a motion of translation of its centre in its orbit, and one of rotation about its axis; or we may combine them into a single rotation, in the period of a lunar month, about a fixed axis passing through the earth's centre.

Again, any displacement of a plane figure in its plane, or of a spherical figure on a sphere, may be produced by the rolling of a curve fixed in the figure upon another fixed on the plane or sphere. Hence the most general motion of a body, with reference to one point, consists in the rolling of a cone fixed in the body upon another fixed in space, their vertices being at the chosen point. To this, when the cones in question are right circular cones, belong the *Precession* (q.v.) and *Nutation* (q.v.) of the earth and of a top, the evolutions of an ill-thrown quoit,

ROTATION.

ROTATION, MAGNETISM OF: term denoting one of a class of phenomena connected with rotation, illustrative of a law of magnetic induction. The magnetism of rotation was discovered by Arago 1824-5. He observed that when a magnetic needle was made to oscillate immediately above a copper plate, it came sooner to rest than it did otherwise. The oscillations were made in the same time as when away from the plate, but they were less in extent; the plate seemed thus to act as a damper to the motions of the needle. This being the action of the plate at rest on the needle in motion, Arago reasoned that the needle at rest would be influenced by the plate in motion. Experiment confirmed his opinion. He made a copper disk revolve with great rapidity under a needle, resting on a bladder placed immediately above it, and quite unconnected with it, the middle of the needle being placed above the centre of the disk. As expected, the needle deflected in the direction of the motion of the disk. The deflection of the needle increased with the rapidity of the motion; and when it reached a sufficient amount, the needle no longer remained in a fixed position, but turned round after the disk. This action of the revolving disk was attributed to what was then called the 'Magnetism of Rotation,' and the name has been since retained.

The explanation of this phenomenon was made first by Faraday (1832). He found it to arise from the reaction of currents, induced in the plate in motion by the magnet. The accompanying figure illustrates the electrical condition of the plate.

PP is the plate, rotating in the direction indicated by the arrow; NS is the needle; and the lines with the arrow-heads indicate the general direction of the currents induced by rotation under the magnet in the plate. There are two complete circuits on each side of the disk, coinciding in the middle, and taking the direction CC. It is the conjoined current

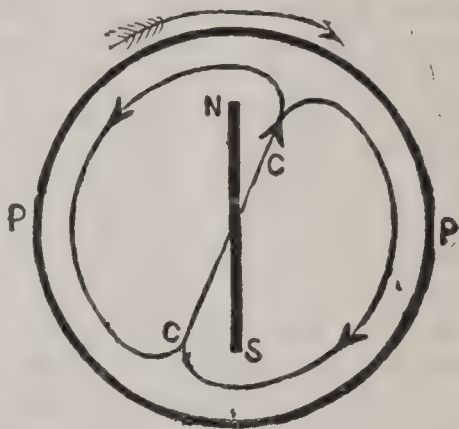


Fig. 1.

which affects the needle; it runs in a direction a little in advance of the needle, as the inductive power of the magnet takes some time to act. As the induced current lies below the needle, the deflection (according to Ampère's rule: see GALVANISM) takes place in the direction of the motion of the disk. When cuts are made in the disk in the line of the radii, it loses almost entirely its disturbing power; the currents formed in the whole disk can no longer take place, and those formed in the various sectors are weak in comparison: by filling up the vacant spaces with solder, the power is nearly restored to it. As is to be expected, the effect of the revolving

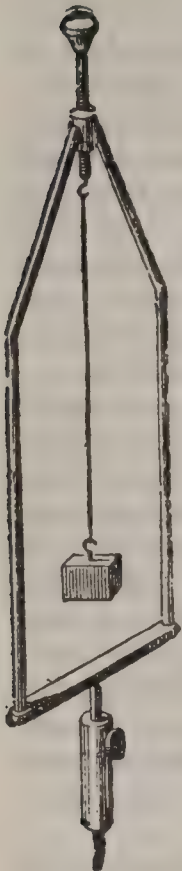


Fig. 2.

plate depends on the conducting power of the material of which it is made. It is owing to its high conducting power that copper is so much used in these experiments; hence also copper is much used in construction of magnetic apparatus. A copper compass-box, e.g., is not only desirable from its being free from iron, but it acts as a damper to bring the needle quickly to rest when disturbed.

The magnetism of rotation is only one of a large class of phenomena, in which the motion either of a magnet or of a conductor near it induces an electric current in the conductor. We here quote two experiments which may be regarded as the converse of the magnetism of rotation. In the first experiment, a small cube of copper (fig. 2) is hung by a thread to a frame, and placed between the poles of a powerful electro-magnet; the cube is sent into rapid rotation by the twist on the thread, previously given it; it is instantly brought to a halt when the current is allowed to circulate in the coils of the magnet, and it begins its motion again when the current is turned off. In the

second experiment, a disk of copper, *c*, is made to rotate rapidly between the poles, *n*, *s*, of an electro-magnet, by means of a handle and intervening wheel-works, turned by the experimenter. When the current invests the soft iron poles with magnetism, the disk, moving freely before, appears suddenly to meet with an unseen resistance, and the rotation continues slowly or not at all. If persisted in, the rotation causes the disk to rise in temperature, the rise being proportionate, according to Foucault, to the square of the velocity of rotation. These and all similar phenomena illustrate a law that holds universally in magnetic induction, and was enunciated first by Lenz: *When a*

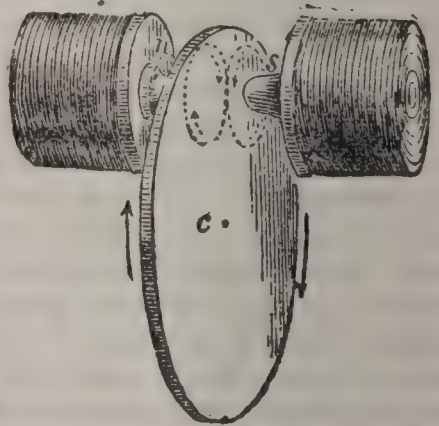


Fig. 3.

current is induced by the motion of a magnet or conductor, the inductive action tends to develop in the conductor a current, in such a direction that its action will be to oppose the motion producing it. Thus, in the last experiment, the part of the disk approaching the poles has a current developed in it which repels them, and the part leaving the poles has a current induced in it which attracts them. The same mode of explanation applies to the other experiments referred to.

ROTATION OF CROPS.

ROTA'TION OF CROPS: in agriculture, cultivation of a succession of dissimilar crops. In a simple form it was practiced by the ancient Greeks and Romans, was long ago introduced into England, and has become one of the great principles of modern farming. It has largely superseded the fallow (see **FALLOW**). Its introduction to England is thought, by some, to have grown out of the conditions of life and the system of land-holding in the village communities, rather than from any clear appreciation of its importance in growing crops. The tillage land was divided into three portions, one of which was given to winter grain, one to summer grain, and one was allowed to lie fallow, a change being made each year so that the same land was not given to the same crop for two successive years. Each inhabitant of a village had a portion of the tilled land assigned to his special use, and it was necessary that some uniform system of cultivation be adopted.

Various reasons have been assigned to account for the necessity of a rotation of crops, but none of them are entirely satisfactory, and some, like the idea that the roots of plants excrete a substance poisonous to similar plants, but harmless to others, have been abandoned. A theory generally accepted is that, as different crops take the elements of fertility from the soil in differing proportions—some requiring large quantities of nitrogen and smaller quantities of phosphoric acid and potash, while others use much phosphoric acid and potash and but little nitrogen—a frequent change will insure larger crops and tend to prevent exhaustion of the land. But this does not fully account for all the phenomena which come under the observation of the cultivator. If there were no other reason than appears in this statement, the application of large quantities of manures, or of commercial fertilizers, specially adapted to the needs of the plants to be grown, should obviate the need of rotation of the crops. Certain crops, like onions and asparagus, are eminently successful under such conditions; but others, like clover, in time show a marked deterioration. This may be due to the generation in the soil of acids formed by large quantities of decomposing vegetable matter, to the peculiar mechanical condition of the soil which sometimes results from keeping the land long in a single crop, and to other causes, some of which are, as yet, unknown.

Aside from its relations to the subject of food supplies, the rotation of crops brings important benefits. It proves a great check to multiplication of insect enemies, which under a continuous system sometimes becomes so great as to prevent possibility of profitable cultivation. It also tends to prevent the spread of various fungoid diseases, e.g., the smut of Indian corn, which are greatly intensified by growing the same crop year after year on the same land. Still another benefit is in the facility which rotation affords for giving clean cult-

ROTATION OF CROPS.

ure, and thus keeping down the weeds which otherwise might increase so as to choke the crops.

The frequency with which changes of crops should be made depends on the various conditions under which they are grown. On soils which disintegrate rapidly, changes are not required as often as on land of opposite nature. There are fields in Peru on which Indian corn has been grown for centuries; but in many localities two or three successive crops are as many as can be profitably grown. The nature of the crops, and the proportion of the product which is fed to animals on the farm and the waste returned to the land, also will exert a strongly modifying influence. Grass, if used on the farm, diminishes its fertility but little, but the growth and sale of grain tend to rapid impoverishment of the soil. The number and kind of animals kept, the quantity of concentrated food with which they are supplied, the quantity and quality of fertilizers used on the farm, and the degree of thoroughness in tillage, also must be taken into consideration.

Various forms of rotation have been adopted at different times and in different countries. Of late the almost inflexible rules of former times have been greatly modified; though in England a form of lease is often used which, by limiting the area to be given to certain crops, and restricting the sale of straw and hay, stands in the way of beneficial changes. The famous Norfolk four-course system, long popular in England, provided for the following crops, each to be grown one year: (1) clover or grass; (2) wheat or oats; (3) turnips, beets, potatoes, or else a bare fallow; (4) barley. In this country the method of rotation is varied in numerous ways. In the n., a crop of corn is often followed by potatoes, this by rye, after which the land is kept in grass several years. When the grass-crop perceptibly fails, the land is plowed, and the same course is gone over again. At the s., corn is often planted on a clover sod, is followed by wheat, this by cotton, and the land is then seeded to clover, which is cropped two or more years.

All systems of rotation of crops should be arranged with reference to economy of labor and the utilization of machinery in their production; and the choice of two or more crops requiring either careful cultivation or harvesting at the same time should be avoided. Two crops requiring a long season in which to mature should not be grown in succession; a surface-feeding crop should usually be followed by one which roots more deeply; and one like asparagus, which occupies the land for a period of years, should be succeeded by one which requires only a short period for development. The frequency of grain-crops, as compared with the legumes and hoed crops, in a rotation, is to be modified by the character and fertility of the soil, the former being sparingly grown on poor soils or on land which cannot be heavily manured. Climatic conditions must be con-

ROTATORIA.

sidered; also the special relations which crops sustain to each other, when such relations are known to exist—such as the beneficial influence of clover and certain other legumes on a succeeding crop of wheat, for which they store nitrogen in the soil. Unless the land is heavily manured (and, as a rule, even then) between two very exhausting crops, one crop or more requiring a much smaller quantity of plant-food should be allowed to intervene.

ROTATORIA, or ROTIF'ERA; popularly known as WHEEL-ANIMALCULES: animalcules named from the apparent rotation of certain disk-like ciliated organs which surround the mouth. Although some of the larger forms may be detected with the naked eye, they are, as a class, microscopical. They are widely diffused over the earth, inhabiting both salt and fresh water, in all climates. There has been much discussion as to their true place in nature. Ehrenberg and others regarded them as Infusoria; but there is no doubt that their organization is far more complex than that of the Infusoria; and the main question at the present day is whether they are most closely allied to the worms or to the crustaceans. Huxley maintains that they form a link connecting the Echinoderms with the Nematoid (or thread) worms, and that they constitute the lowest step of the Echinoderm division of the Annelida; while Leydig endeavored to show that, on various anatomical, physiological, and embryological grounds, they more nearly resemble crustaceans than worms, and proposed to call them *Ciliated Crustaceans*. Science is indebted to Leeuwenhoek for discovery of this remarkable class of animals. In *Philosophical Transactions*, 1702, he described one of the commonest of these animals, now known as *Rotifer vulgaris*, his attention having been directed especially to its power of retaining its vitality after more or less complete desiccation—a fact since confirmed by many other observers (see DORMANT VITALITY). The R. have usually an elongated form, and are in most cases covered with a smooth hard skin, thrown into folds by contractions of the subcutaneous tissue. The animal consists of a head and body. The body usually terminates in a prolongation, which, till recently, was termed the tail, but which is now known as the foot, and into which the intestines are never prolonged. The foot is composed of muscular and glandular structures, and often terminates in a pair of forceps, by which the animal can attach itself to leaves, etc. The body generally presents six segments, more or less distinct in different genera. The head presents the characteristic rotatory organs and the mouth, which always lies in the midst of them so as to receive particles drawn in by their whirlpool action. It is by these organs that they swim freely about, revolving on their axis, or, when at rest, producing vortex-like disturbances of the water. The form, number, and arrangement of these organs vary extremely in different genera, and

ROTATORIA.

have been made a basis of classification by Ehrenberg and others. The rotatory organ may be single, double, or multiple. It often consists of a disk supported by a pedicle, on whose borders are successive rows of regularly arranged cilia, whose motion gives the appearance of rotation to the disk itself. In the genera *Floscularia* and *Stephanoceros*, these organs undergo peculiar modifications. In the former, there are five or six button-like processes about the mouth, covered with very long bristles, which move feebly, and scarcely give rise to vortices; while in the latter, the rotatory apparatus consists of five tentacle-like ciliated processes, and the animal thus closely resembles the Polyzoa (q.v.). The ciliated rotatory organs, unlike ordinary volatile cilia, are entirely under the animal's control. The digestive apparatus differs extremely in the two sexes, which are always distinct in these animals. In the female, the digestive apparatus is well developed, consisting of a mouth opening into a muscular pharynx, which has two horny masticating organs moving laterally upon each other. The pharyngeal masticating apparatus is of roundish form, and is composed of two jaws having one or several teeth brought together laterally by action of special muscles. For further information, see an exhaustive memoir by Gosse, 'On the Structure, Functions, and Homologies of the Manducatory Organs of the Class Rotifera,' *Philosophical Transactions*, 1856. Succeeding the pharynx is a narrow œsophagus, which leads into a dilated stomach, from which proceeds an intestine opening externally by an anus. In all the males discovered, there is entire absence of digestive organs, a rudimentary pharynx being the most that is ever observed. The nervous system in the R. consists of a cerebral ganglion, with filaments radiating from it. No heart or vessels have been discovered, but the respiratory organs are well developed. The sexual organs of the female are better known than those of the male. The ovary is round or oval, usually by the side of the stomach, and the oviduct, proceeding from it, usually opens into the cloaca. The ovaries develop only a few eggs at a time, and the nearly mature eggs may be readily observed in the body of the animal under a microscope. These animals produce two distinct kinds of



Fig. 1.—Male Egg,
just laid.

eggs, similar in their primary formation, but differing in their ultimate destiny—namely, thin-shelled summer eggs and thick-shelled winter eggs. The young are liberated from the former immediately after their discharge, while they remain unhatched in the latter during the winter weather. As far as hitherto observed, the males, much fewer in number than the females, are developed only from summer eggs. Except in regard to their being totally devoid of stomach or in-

ROTATORIA.

testine, and in relation to the sexual organs (which in the male have been carefully examined by Gosse in his memoir 'On the Dicoecious Character of the Rotifera,' in the *Philosophical Transactions*, 1857), the organization of the males is similar to that of the females. The sexes are, however, so unlike that they would be taken for widely remote genera, if their actual hatching had not been observed; the males and the eggs from which they spring being much smaller than the females and the eggs from which they are produced. (In *Brachionus amphiceros*, the female eggs were $\frac{1}{170}$ of an inch in



Fig. 2.—Female Egg, nearly mature.

length, while the male eggs were only $\frac{1}{307}$.) The accompanying figures represent the male and female of *Brachionus dorcas* when newly born. The length of the latter an hour after birth was $\frac{1}{98}$ of an inch, while the diameters of the empty shell were only $\frac{1}{175}$ by $\frac{1}{220}$ of an inch—a marvellous increase in so short a period. 'Whether,' says Gosse, 'certain



Fig. 3.—Male *Brachionus dorcas*.

individuals produce only male, and others only female young, or whether separate impregnations are required for the production of the separate sexes, I do not know; but from all my observations I gather that the development of the one sex never takes place co-etaneously with that of the other; for male and female eggs are

ROTCHE—ROTE.

never seen attached to the same parent, and the immature eggs in the ovary invariably develop themselves



Fig. 4.—Female *Brachionus dorcas*.

into the same sex as those which are already extruded. The duration of life in the males is always very brief; I have never been able to preserve one alive for twenty-four hours. Their one business is to impregnate the females, and for this momentary occupation no supply of loss by assimilation of food is wanted, and hence we can understand the lack of the nutritive organism.'

ROTCHE, *röch* (*Mergulus* or *Cephus*): genus of the Auk family (*Alcadæ*), separated from the true auks on account of the thick, short, and indistinctly grooved bill. The COMMON R. (*M.* or *C. melanoleucus*, or *M. alle*, formerly *Alca alle*), known also as the LITTLE AUK, SEA DOVE, DOVEKIE, and GREENLAND DOVE, is about the size of a large pigeon; its general color is black, but the belly is white, and there is a white mark on each wing. It is very abundant in arctic seas, and immense flocks are seen on the coasts of Greenland, Spitzbergen, Melville Island, etc. It is, however, truly oceanic in its habits, and scarcely visits the land except during the breeding season. See AUK.

ROTE, n. *rôt* [F. *route*; OF. *rote*, a track or road—from mid. L. *rupta*, a road—from L. *ruptus*, broken; *rumpĕrĕ*, to break]: the practice of impressing words on the memory by mere repetition, without an effort of the understanding: V. in OE., to fix in the memory without informing the understanding. BY ROTE, without variation in the same track or road; by mere repetition, without the exercise of the understanding—but to learn by heart is to learn thoroughly.

RÖTE—ROTHER.

ROTE, n. *rôt* [OF. *rote*; OHG. *hrota*, a rote: Gael. *cruit*, a harp, violin]: in *OE.*, a musical instrument, of two varieties, one being a psaltery or harp, the other a kind of fiddle.

ROTE, v. *rôt* [L. *rota*, a wheel]: in *OE.*, to go out by rotation.

ROTHER, *rō'téh*, **RICHARD**: one of the most profound speculative theologians of Germany: 1799, Jan. 28—1867, Aug. 20; b. Posen. He studied theology in the univs. of Heidelberg and Berlin, under Schleiermacher and Neander, and became successively member, professor, director, and ephorus of the Theological Seminary of Wittenberg. In 1837 he was nominated prof. of theology at the Univ. of Heidelberg, which in 1849 he exchanged for Bonn. In 1854 he returned to Heidelberg.—R. was in youth deeply religious and inclined to a mystical theology; later he was strongly influenced by Pietism; but still later his scope broadened; and in the last six years of his life he was publicly known as one of the theological liberals, though indeed his place might more correctly be stated as among the very moderately orthodox. He held that man, for his salvation from sin, required a supernatural revelation from God revivifying the human consciousness, and that the Saviour had to manifest himself 'in human history as a fresh miraculous creation, born of a woman, but not begotten by a man.' Vigorous grasp and keenly logical independence of thought, with an intensely religious spirit, were his chief characteristics; but he never formed a school, in the strict sense of the term. One of his well-known works is the *System of Theological Ethics, or Moral Theology*—a complete system of speculative theology or theosophy. This work is to show that religious truth is not a series of disputable propositions, but a Divine morality; the book is an attempt to translate the scholastic dialect of the creeds back into the living language of the Sermon on the Mount. Another remarkable book of his is the *Beginnings of the Christian Church*, which, by the peculiarity of 'stand-point' assumed by the author regarding church and state—tending to identify the two in his ideal, as he identified religion and morality—evoked many fierce counter-treatises, like Baur's *On the Origin of Episcopacy*. R. died at Heidelberg. Four different works by him, in 9 vols., have since been published. See *Life* by Nippold (Wittenberg 1873-4).

ROTHENBURG AN DER TAUBER, *rō'tén-bûrch ân dër tow'bér*: small ancient town of Bavaria, on the Tauber, 31 m. s.s.e. of Würzburg. There are manufactures of woolen cloth, paper, and gunpowder, and trade in corn and cattle. Pop. (1880) 6,504.

ROTHER, n. *rōth'ér*: in *OE.*, an old spelling for **RUDER**, which see; a sailor. **ROTHER-NAIL**, a large nail with full head for fastening rudder-irons.

ROTHER—ROTHESAY.

ROTHER, a. *rōth'ér* [AS. *hryther*, an *ōx*]: in *OE.* and *prov. Eng.*, wild; fighting and roaring, as cattle: N. black cattle in general. TO RULE THE ROTHER, in *OE.*, to be master among the herd; to rule the fight. ROTHERSOIL, dung of rother beasts.

ROTHERHAM, *rōth'ér-am*: market-town in the W. Riding of Yorkshire, England; 6 m. e.n.e. of Sheffield, on the slope of a hill on the right bank of the Don, immediately below the junction of that river with the Rother. On the middle of the ancient stone bridge that crosses the Don is a Gothic chapel, formerly a prison. The Free Grammar School, founded 1584, restored 1858, and the court-house, are handsome buildings. In the neighborhood are coal and iron mines, which furnish materials for the manufactures, chief of which are stoves, grates, nails, and engines. Pop. (1871) 25,892; (1891) 42,050.—In the vicinity of R. are Roche Abbey, erected 1147, whose masonry is still perfect; and Conisborough Castle, a massive ancient stronghold, still in good preservation (see Scott's *Ivanhoe*).

ROTHERMEL, *rōth'ér-mēl*, PETER FREDERICK: historical painter: b. Nescopack, Penn., 1817, July 18. After preparation for the profession of land-surveying, he adopted art at an early age, under the instruction of Otis, at Philadelphia, where he afterward lived, except during two intervals of residence abroad. In the Penn. Acad. he held prominent positions. His works are imaginative rather than realistic, though historical; and his ability in composition is acknowledged: among his best known are *De Soto Discovering the Mississippi*, *The Embarkation of Columbus*, *Columbus before Queen Isabella*, *Patrick Henry before the Virginia House of Burgesses*, and *the Battle of Gettysburg*. He d. 1895, Aug. 15.

ROTHESAY, *rōth'sā*: royal burgh, seaport, and favorite watering-place of Scotland, cap. of the county of Bute, beautifully situated on the n.e. shore of the Island of Bute, at the head of a deep bay, 40 m. w. of Glasgow by the river Clyde. The bay offers safe anchorage in any wind, and is spacious enough to contain the largest fleet. The town has excellent schools and seminaries, hotels, shops, and warehouses; while the beautiful bay, and the charming scenery of the island, attract summer residents. Its sheltered position, and the extreme mildness of the climate, have made R. a resort for invalids, especially those with pulmonary disease. Fishing employs some of the inhabitants, there is some ship-building, and at the pier nearly all the Clyde steamers to and from the w. Highlands regularly touch. There is a very handsome promenade, an excellent hydropathic establishment, and an aquarium. In the middle of the town are the ruins of Rothesay Castle, which receives historical mention first in 1263: it has remained in ruins since 1685. The Marquis of Bute has done much to render this ruin a picturesque object to visit.—Pop. of R. (1891) 9,034, indefinitely increased during summer.

ROTHSCHILD.

ROTHSCHILD, *röths'child*, Ger. *röt'shilt*, **LIONEL NATHAN DE**, Baron: 1808, Nov. 22—1879, June 3; b. Frankfurt; eldest son of Baron Nathan Mayer de R. He was educated at Göttingen; was early initiated by his father into the business of the firm, and successfully extended its colossal operations. He was elected to parliament for London 1847, 49, 52, and 57; and at each election claimed to take the oath and his seat in the house of commons. The latter words of the oath—'on the true faith of a Christian'—he insisted on omitting, 'as not being binding on his conscience.' He was then requested to withdraw from the house; and patiently awaited the fate of the bill for Jewish emancipation, which usually passed the commons and was rejected by the upper house. In 1858 he was placed on a committee which was to hold a conference with the house of lords, and this was virtually the means of establishing Jewish emancipation. The commons sent up another bill; and a general belief prevailed that if it were, like the rest, thrown out by the lords, Jewish members would be admitted by resolution of their own house, instead of by act of parliament. The lords gave way, merely taking measures to prevent the admission of Jews into the upper chamber. Baron R. thereupon (1858, July) took the oath and his seat. He sat till 1868, and again 1869–74.—In 1875 the firm of N. M. Rothschild & Sons supplied the £4,000,000 required for purchase of the Suez canal shares.—His brothers, Sir **ANTHONY R.** (1810–76) and Baron **MAYER AMSCHEL DE R.** (1819–74), were members of parliament.—His eldest son, Lord **NATHANIEL MAYER DE R.** (b. 1840, Nov. 8), sat in the liberal interest for Aylesbury 1864–85, and was then raised to the peerage as Baron R. He is the present head of the firm in London (1891); and, like many of his family, an enthusiastic collector of works of art.

ROTHSCHILD, **MAYER ANSELM DE**, Baron of the Austrian empire: 1743–1812, Sep. 19; b. in the Jews' alley, Frankfurt-on-the-Main; son of Anselm Moses **BAUER**, small Jewish merchant. He was brought up to be a rabbi of the Hebrew faith; but became a money-lender at the sign of the 'Red Shield' (*Rothschild*—whence his change from his father's name) in Frankfurt. He soon gained reputation for integrity, which, with his taste for numismatics, gained him the friendship of William, Landgrave of Hesse-Cassel; and R., being employed by the senate to raise a loan to save Frankfurt from pillage by the French republican army, obtained a loan from the landgrave. The landgrave (afterward elector) acquired immense sums by selling his subjects to fight in the armies of England and France. Napoleon, after the battle of Jena, pronounced the forfeiture of his estates, and a French army was on the march to his capital. The landgrave had accumulated in his palace vaults about \$5,000,000 in silver; and sending for R. to Cassel, he offered him the free use of the treasure, with-

ROTHSCHILD.

out interest, if he would convey it to a place of safety. With the aid of his Jewish friends, R. succeeded in secreting the money (it is said, burying it in a corner of his garden), and saving it from the hands of the French. At this time he had five sons, three of whom—Anselm, Nathan, and Solomon—being grown up, he associated with himself in business. ANSELM MAYER DE R. (1773–1855) remained with him at Frankfurt, and was chosen a member of the royal Prussian privy council of commerce, and 1820 Bavarian court-banker. NATHAN MAYER DE R. (see below) went to England 1800, where he acted as his father's agent. Previous to Mayer Anselm de R.'s death, he saw his five sons securely established as monarchs of European finance—Anselm Mayer in Frankfurt, Nathan Mayer in London, Solomon in Vienna, James in Paris, and Charles in Naples; all united in the wealthiest copartnership of the present, or probably of any, age. The chief of the firm, according to the founder's wish, was to reside at Frankfurt, where all important consultations are held. The sons were created barons by the Austrian govt. 1822. R. left also five daughters. The loans contracted by the firm during the great war with France were not more remarkable for magnitude than for success. They never took a bad loan in hand, and few good loans fell into other hands. In addition to their five principal establishments, they have agencies in many other cities of the old and new world. On two or three occasions the Rothschilds have successfully exerted themselves to preserve the peace of Europe. Their losses from the French revolution 1848, and from depreciation in funds and securities which followed the subsequent disturbances in various capitals of Europe, were estimated at \$40,000,000—a wild estimate, but showing the popular belief in the immense resources of the firm.—As the members of each successive generation are received into the copartnership, and the cousins usually intermarry, and as their immense wealth is being continually augmented by a profitable business, the name and operations of the firm give promise of outlasting some royal dynasties.

ROTHSCHILD, NATHAN MAYER DE, Baron: 1777, Sep. 16—1836, July 28; son of Mayer Anselm de R. (q.v.). Removing to England 1800, he acted as agent for his father, first at Manchester, in the purchase of Manchester goods for the continent. He then removed to London, where, by his father's agency, large sums were placed at his disposal, and invested by him with so much judgment that his capital multiplied with great rapidity. He was appointed, by the interest of the Landgrave of Hesse-Cassel, agent for the payment of the £12,000,000 sterling which, by the treaty of Töplitz, Great Britain stipulated to pay to her German allies. A large profit accrued to the house by this transaction. He is said to have been present at the battle of Waterloo, watching the struggle, and to have made known to his

firm in London the result of the battle several hours before it was known to the Eng. govt.; and the knowledge is reputed to have been worth a million dollars to the firm. R. after his father's death was considered the chief of the family, and has the repute of the most original financial genius of them all. He died at Frankfurt, whither he had been called by the marriage of his eldest son, Lionel, to his cousin Charlotte, daughter of Baron Charles. Anselm, Solomon, and Charles all died 1855, the first named dying childless at Frankfurt, and leaving a fortune valued at from 40,000,-000 to 50,000,000 florins (16-20 million dollars). James died 1868.

ROTIFER, n. *rō'tī-fēr* [L. *rota*, a wheel; *ferrē*, to carry]: one of the ROTIFERA, *rō-tīf'ér-a*, a class of animals; called also wheel-animalcules (see ROTATORIA, under ROTATE: also ROTATORIA, or ROTIFERA). ROTIFEROUS, a. *-ér-ūs*, having or bearing organs like wheels.

ROTTED, ROTTEN, ROTTEN-STONE: see under Rot.

ROT'TEE (island): see ROTTI.

ROTTEN-BOROUGH, n. *rōt'n-būr'ōz*: name given to certain boroughs in England, which, previous to the Reform Act of 1832, retained the privilege of returning members to parliament, though the constituency consisted of a mere handful of electors. In one case (Old Sarum), the borough did not contain a single inhabitant.

ROTTENBURG, *rōt'n-bûrch*: town in Würtemberg, seven m. s.w. from Tübingen; on the Neckar. The castle, built 1216, is now the house of correction. In the neighborhood are extensive hop-fields, orchards, and vineyards. The Roman station Sumelocennis stood on the site of R., and remains of roads and viaducts have been found. R. is seat of a bishop. Pop. (1890) 6,912.

ROTTEN ROW, n. *rōt'n rō*: the fashionable ride in Hyde Park, London. *Note.*—An interesting parallel to *Rotten Row* is found in the Gael. *rathad-an-righ* [*rathad*, a road; *an*, of; *righ*, the king], the king's road or highway, and the Scot. corruption of the same phrase is 'Rattan-raw'; there are many 'Rotten Rows' and 'Rattan-raws' in Eng. and Scot.; a suggested origin of the London *Rotten Row* is the F. *route-du-roi*, the king's road: the suggested origin from the corruption of *routine-row*, as the *route* or course which the monks took in some of their processions, is not probable—see Dr. C. Mackay.

ROTTEN-STONE, *rōt'n-stōn*: mineral consisting chiefly of alumina, with about ten per cent. of carbonaceous matter, and a little silica; soft, and easily scraped to powder: used for cleaning and polishing brass and other metals. It is supposed to be formed by decomposition of shale; and is found near Albany, N. Y., and in very numerous localities. It is brown; either grayish, reddish, or blackish.

ROTTERDAM.

ROTTERDAM, *röt'ér-dām*, Dut. *röt-ér-dâm'* (*dâm* or dike of the *Rotte*): after Amsterdam, the largest city in the Netherlands, and a place of great commercial activity; at the confluence of the Rotte with the Maas, in the province of S. Holland. It forms a triangle with apex to the n., and base stretching along the river, where ships from all parts of the world discharge their cargoes in front of the Boompjes, a splendid row of houses shaded with trees. The Hoog Straat, built on the dam or dike formed to repel inundations, divides the city into the Binnenstad and Buitenstad, the former n. of that line, the latter extending s. to the Maas. Broad canals or havens, full of shipping, cut the Buitenstad into islands, and lofty houses face the quays on either side. The largest canals are the Leuvenhaven and Oudehaven, which trend inward from the Maas; and the Scheepmakershaven, Wijnhaven, Blaak, Haringvliet, and Nieuwhaven, parallel with the river. The waterway to the sea was deepened and altered, by works completed 1872, to avoid as far as possible the hindrances to navigation caused by the sand-banks at the mouth of the Maas. R. has railway communication with the other cities of the Netherlands, Germany, and Belgium. It is about 20 m. from the mouth of the Maas, the great commercial highway between the open sea and the Rhine provinces of Prussia.

The industries are varied, including sugar-refining, gin-distilling, making of liquors, beer-brewing, iron-founding, soap-boiling, manufacture of vinegar, cigars, patent oil, sail and hair cloths, articles of gold and silver, ship-building, etc. The works of the Netherlands Steamboat Co., at Feijnoord, employ 700 men. The shipping trade is extensive. There is a shipping line to New York and Java, and several lines to ports on the Baltic. For the large transit-trade, chiefly with Germany, there are about 30 steam lines to England, 5 to Scotland, and 2 to Ireland. 1870-80, about four-fifths of the steamers and one-third of the sailing-vessels that entered the port were from Britain or her colonies.

Refined sugar is extensively exported. Large quantities of butter, cheese, yeast, madder, flax, and fruits are annually sent to Great Britain; also immense numbers of cattle, calves, swine, and sheep.

The municipal govt. consists of a burgomaster, 4 wethouders (aldermen), and 34 councilors. R. had 4 Dutch Reformed churches, 1 French Prot., 1 Eng. Episc., 1 Scotch Presb., 6 Rom. Cath. chapels, and 1 Jewish synagogue. The schools are good, and subsidized by the municipality. There were 3 for gymnastics; normal school; one for training boys for sea; medical school; institute for the deaf and dumb, at which 93 boys and 52 girls were educated by 15 teachers, 64 of the pupils being admitted free; grammar school called the Erasmus; and several institutions for arts, sciences, architectural drawing, and music. The medical school has an anatomical museum; the Batavian Soc. has a good

ROTTI—ROTLERA.

collection of philosophical instruments, books, and models. The Museum Boijmans, with many valuable paintings and works of art, was destroyed by fire 1863. The Exchange, built 1722, is a plain, rectangular building of hewn stone. The hospital, on the Coolsingel, a handsome structure, with excellent internal arrangements, can receive 250 patients. R. has also a children's hospital, a great boon to the poor. The St. Laurence Church, built at the end of the 15th c., is a spacious building, ornamented with a high truncated tower, whose top is reached by 326 steps: it has a splendid organ, and several beautiful marble monuments, in honor of De Witt, Admiral Kortenaar, and other distinguished men. A bronze statue of Erasmus stands on the Great Market, and the house in which he was born is pointed out in the Breede Kerk Straat, which leads to the Great Church.—R. is rapidly extending. Pop. (1872) 123,677; males 58,411, females 65,266; (1901, Dec.) 341,051. About two-thirds of the people are Protestants, nearly one-third Rom. Catholics, 4,500 Jews.

ROTTI, or ROTTEE, *rôt tē*: island in the Indian Archipelago, belonging to the Dutch; s.w. of Timor; $10^{\circ} 39'$ — $10^{\circ} 56'$ s. lat., and $122^{\circ} 57'$ — $123^{\circ} 29'$ e. long.; greatest length, e. to w., 36 m.; breadth from Termano on the n. to Tilly on the s., about 11 m. The surface is nowhere more than 600 ft. above the sea, and the fertile soil produces rich vegetation. The most valuable product is the Lontar palm, the juice of which, either fresh or thickened by boiling, and preserved in pots, forms a leading article of food. Next in importance is the Gabang tree, which bears large quantities of fruit in size and shape like apricots, the fibre yielding a good tow, and the pith a sort of sago. Cocoa-nut, plantain, banana, and mango trees are abundant. There is great variety of timber-trees, e.g., beautiful ebony, mahogany, and several sorts well adapted for ship-building. R. is famed for a small but hardy race of horses; and has buffaloes, sheep, goats, swine, and deer. Edible nests, trepang, tortoise-shell, and wax, also horses, swine, palm-wine, syrup, sugar, and native sail-cloth, are exported to Timor; and cotton fabrics, cotton, beads, iron, iron-work, powder, guns, and arrack received in exchange. Pop. 75,000.

ROTLERA, *rôt lér-a*: genus of trees of nat. order *Euphorbiaceæ*, with a 3-5 parted calyx, no corolla, 30-40 stamens springing from the convex receptacle, and a 2-4 coccous capsule, each portion having one seed. The species are rather small trees, found in India and other tropical parts of Asia. *R. tetracocca* grows in Sylhet, and yields a hard and valuable timber. *R. tinctoria* is native of India, from the Coromandel coasts to the n. forests. Its capsules are covered with short, stiff hairs, which, when rubbed off, have the appearance of fine red powder, are used in India for dyeing silks scarlet and orange, and form an article of commerce. The color this dye-stuff yields is of great beauty and stability.

ROTTWEIL, *rôt'vîl*: small town of Wûrtemberg, on the Neckar, 38 m. e.n.e. of Freiburg in Baden. It contains a beautiful exchange and a number of interesting churches. Its manufactures are gunpowder, silk, cotton, and woolen fabrics, and its corn-market is one of the most important in the kingdom. Pop. (1890) 6,925.

R. is the site of an ancient Roman colony, among whose ruins was discovered, besides many other valuable antiquities now preserved in the buildings of the gymnasium, a piece of mosaic-work, upon which are an excellent drawing of Orpheus and a number of profile drawings of the larger kinds of game, of chariot-races, and of gladiatorial encounters, with other drawings.

ROTULA, n. *rôt'û-lq* [L. *rôtûla*, a little wheel—from *rota*, a wheel]: in *anat.*, the patella or knee-pan, situated at the front of the knee-joint.

ROTUMA, *rô-tô'mâ*: small island in the s. Pacific, formally annexed to the Fiji Islands by Great Britain 1880; about 250 m. n.n.w. from the nearest island of that group; 14 sq. m. The soil is fertile, and readily produces sugar, coffee, cotton, yams, taro, bananas, etc. The natives are friendly to the white man. R. was discovered by Capt. Edwards in his search for the mutineers of the *Bounty* 1791. Pop. (1884) 2,414.

ROTUND, a. *rô-tünd'* [L. *rotun'dus*, wheel-shaped—from *rota*, a wheel: It. *rotondo*]: round; spherical; inclining to be round. ROTUNDITY, n. *-tûn'di-tî* [L. *rotun'ditas*]: roundness; sphericity. ROTUN'DA, n. *-da*, or ROTUN'DO, n. *-dô*, building that is round both on the outside and inside, as the Pantheon of Rome.

ROTURIER, *rô-tû-rî-â'* [according to Littré, from *ruptura*, Low Latin for ground *broken* by the plow]: one of the ignoble classes, who, during the early period of the feudal system, were separated from the high-born by almost as broad a line of demarkation as that which divided servitude from liberty. When the feudal theory of knight-service came to be recognized as the only principle of gentle tenure, the term R. came to be applied to the part of the population who continued to hold by the older or allodial tenure.

ROUARIE, *rô-â-rê'*, ARMAND TAFFIN, Marquis de la: 1756, Apr. 14—1793, Jan. 30; b. Rouarie Castle, near Rennes, France: soldier. He joined the king's body-guard when 19 years old; was soon afterward dismissed for duelling; came to the United States when 21, and received a commission as col. in the army; and served gallantly till the close of the revolutionary war, with Lafayette, Gates, and Washington, retiring with the rank of brig.gen. He lived in France in private life till 1788, when he was chosen a deputy to obtain from the king a pledge that he would preserve the privileges of Brittany, and for his zeal was confined in the Bastile a short time. Subsequently he planned a union of the provinces of Brittany, Anjou, and Poitou: but he died before the uprising of Les Chouans.

ROUBAIX—ROUEN.

ROUBAIX, *rô-bā'*: flourishing manufacturing town in n. France, dept. of Nord, six m. n.e. of Lille. It has risen into importance in the present century, as a great seat of manufacturing industry. Numerous mills and factories, as well as dye-works and tanneries, are in operation. R. rivals Elbeuf and Louviers for woolen cloths and carpets, and vies with Laval and the rest of Flanders in linen manufactures. Pop. (1876) 74,946; (1881) 91,757; (1886) 100,299; (1891) 115,000.

ROUBLE, or **RUBLE**, or **RUBEL**, n. *rô'bl*: Russian silver coin, the unit of the Russian money system. Pieces of peltry formed, in early times, the ordinary medium of exchange in Russia; but about the beginning of the 15th c., silver bars came more into use for larger payments; and to make up intermediate sums, pieces of the bars were cut off. It was in this cutting off—in Russian, *rubat*—that the name R. originated. The present silver R. is equivalent to nearly 80 cents. Half, quarter, fifth, tenth, and twentieth parts of a rouble also are coined in silver; and gold coins of nominally five roubles (demi-imperials) and three roubles (imperial ducats) also are in circulation. In 1877 the *paper rouble* had fallen from about 75 cts., its nominal value, to about 35 cts. The rouble is divided into 100 kopeks.

ROUÉ, n. *rô'ā* [F. *roué*, one broken on the wheel—from *rouer*, to break on the wheel; *roue*, a wheel—from L. *rota*, a wheel]: one devoted to a profligate life; a confirmed rake.

ROUEN, *rô-ōng'*: one of the principal manufacturing and trading cities of France, cap. of the dept. of Seine-Inférieure, and ancient cap. of Normandy; on the right bank of the Seine, 87 m. n.w. of Paris by railway. The ramparts have been converted into spacious boulevards, which, as well as the quays that line the river-banks, are little inferior to the boulevards and quays of Paris. The deep waters of the Seine form a commodious port, generally crowded with vessels of all nations, from 300 tons to the smallest river-craft. A stone bridge and a suspension-bridge connect the Faubourg St. Sever, on the left bank of the river, with the city, which is at once one of the most picturesque and one of the busiest and liveliest places in France. Some of the streets are well and regularly built, with fine modern stone houses; but the greater part of R. consists of old, ill-built, but picturesque streets and squares, with tall, narrow, quaintly carved, wooden-bound, and gabled houses. Among the many beautiful Gothic churches for which it is noted, the finest are the cathedral and the church of St. Ouen. The former, one of the noblest metropolitan churches of France, is a remarkably fine specimen of Gothic architecture. It is of cruciform shape, and has two towers at the sides of the w. entrance, and a lofty tower (464 ft. high) terminating in a cast-iron spire, which was erected after the destruction by fire 1822 of the old wooden belfry, which

bore the date 1544. It was erected by Philippe Auguste between 1200 and 1220, and contains, in its 25 highly ornamented chapels, numerous monuments of great interest—among others, those of Duke Rollo of Normandy, and his son, William Longsword. The heart of Richard Cœur de Lion, buried in this church, is now preserved in the extensive Museum of Antiquities. The church of St. Ouen, as large as the cathedral, is one of the most interesting buildings in R.; and in its present restored state presents a pure and elegant specimen of Gothic architecture. Among the other buildings, the finest are the Palais de Justice, belonging to the 15th c., built for the parliament of the province; the Hôtel de Ville, with its public library of 110,000 vols., and its gallery of pictures; and the Hôtel Dieu, one of the largest of its kind. R. has numerous benevolent, educational, and scientific institutions; and next to Lyons is perhaps the most important manufacturing town in the republic. The principal branches of industry are cotton manufactures, including the checked and striped cottons specially designated as *Rouenneries*, nankeens, dimity, lace, cotton-velvets, shawls, etc. R. has extensive manufactures also of hosiery, mixed silk and wool fabrics, blankets, flannels, hats, cordage, cotton and linen yarns, shot, steel, lead, chemicals, paper, etc. Ship-building and machine-making in various departments are carried on. R. is the seat of an abp., a high court of justice for the dept., a tribunal of first instance, and of commerce, etc. Pop. (1886) 107,163; (1891) 112,352; (1901) 116,316.

History.—As the original capital in France of the Northmen, who took possession of it 842, and settled there in accordance with the agreement which Charles the Simple was compelled to make with their leader Rollo, R. presents special points of interest to Englishmen. It was the residence of the dukes of Normandy till Duke William, 1066, on his conquest of England, transferred the seat of his court to London; and, till the time of Richard Cœur de Lion, it continued the cap. of Normandy, and was the seat of govt. of the Norman possessions of William the Conqueror's successors; but 1204 it was taken by siege by the French king, Philippe Auguste, and annexed with the main part of the duchy to the French crown. During the wars of Henry V. and Henry VI. of England, it was under the power of the English 1419–49, when it was retaken by the French under Charles VII. It was during this occupation by the English that Joan d'Arc was burned alive (1431) as a witch in the square of the city, in which stands her statue, and which is called, in memory of her, Place de la Pucelle. R. was occupied by German troops in the war of 1870–1.

ROUGE—ROUGE-ET-NOIR.

ROUGE, n. *rôzh* [F. *rouge*—from L. *rubēŭs*, red: L. *ruber*, *rufus*, red]: preparation of safflower, used to give artificial bloom to the cheeks, and, when properly prepared, said to be perfectly harmless in such use. The color is obtained through a long and elaborate process, by precipitating it from the safflower, by citric acid or lemon juice, on to prepared cotton. It is then washed out of the cotton with a solution of soda, and again precipitated with citric acid; but previous to adding the acid, finely powdered French chalk is added to the solution, which becomes colored, and falls down, when the precipitation takes place, giving the necessary body and a peculiarly silky lustre to the coloring matter. *Jeweller's rouge* is a preparation of iron formed by calcining sulphate of iron or green vitriol, until the water of crystallization is expelled; it is then roasted in a strong heat, and afterward washed with water, until it no longer affects litmus paper. *Liquid rouge* is the red liquor left in making carmine. **ROUGE**, a. red: V. to tinge the cheeks with rouge; to tinge or paint with rouge. **ROUG'ING**, imp. **ROUGED**, pp. *rôzhd*: **ADJ.** tinged with rouge, as the face. **ROUGE CROIX**, one of the pursuivants belonging to the heraldic establishment of England, generally allowed to be the most ancient. **ROUGE DRAGON**, title of a pursuivancy founded by Henry VII., the day before his coronation.

ROUGE-ET-NOIR, *rôzh-â-nwâr'* [F., 'red-and-black'], or **TRENTE-UN** ['thirty-one'], or **TRENTE ET QUARANTE** ['thirty and forty']: notorious modern game of chance, played with six packs of cards on a table covered with green cloth. The table is divided into four portions, each marked in the centre with a diamond, the diamonds being alternately red and black; and these quarters are further separated, two and two, by bands which cross the table at its narrowest part. At the end of the table is a series of concentric bands of yellow color. *Tailleurs* (or dealers), including the *croupier*, manage the table, take charge of the bank, and keep an eye on the players. Each player must stake his money on one of the four chances, denominated *noir*, *rouge*, *couleur*, and *l'inverse*; and the stakes are laid on the table—those for the *noir* being laid on either of the quarters marked with a *black*; those for the *rouge* on either of the quarters marked with a *red* diamond; those for the *couleur* on one of the transverse bands; and those for the *inverse* on one of the yellow circles at the end of the table. The *tailleur* then deals a limited number of the cards, laying them face upward, side by side, on the table; and the question of winning or losing is determined by such points as the color of the first card tabled by the *tailleur*, or the number of pips in the first row of cards tabled, etc.—The game requires no skill and is of use only to gamblers: the odds are always in favor of the bank. Together with roulette, this game has been forbidden by law in some countries.

ROUGH—ROUGH RIDERS.

ROUGH, a. *rŭf* [Ger. *rauch*; Dut. *ruych*; AS. *hruh* or *ruh*; Dan. *ru*, rough, hairy]: not smooth or plain; rugged; not wrought or polished; violently agitated, as the sea; stormy, as the weather; harsh to the taste or ear; grating; rugged of temper; coarse in manners; crude; imperfect; hard-featured; hairy or shaggy; in *OE.*, terrible; dreadful: N. state of being coarse or unfinished, as articles *in the rough*. **ROUGH'ING**, imp. **ROUGHED**, pp. *rŭft*. **ROUGH'LY**, ad. *-lī*, in a rough manner; with uneven surface; harshly; severely. **ROUGH'NESS**, n. *-nēs*, the quality or state of being rough; unevenness; harshness; asperity; ruggedness of temper; coarseness of manners. **ROUGH'ISH**, a. *-ish*, rather rough. **ROUGHS**, n. plu. *rŭfs*, coarse unmannerly men; rowdies; blackguards; ruffians. **TO ROUGH IT**, to put up with inconveniences and hardships, as in travelling. **ROUGHING-IN**, in *arch.*, a plastering of three coats on brick or stone work. **ROUGH-CAST**, n. in *sculp.*, rude or first model: in *building*, fluid mortar mixed with fine gravel, making a coarse plaster for a finishing coat on outer walls: V. to mold in a rude unfinished state. **ROUGH DIAMOND**, a diamond uncut; a person possessing great worth, but rude and unpolished in manners. **ROUGH DRAFT** or **DRAUGHT**, a first or unfinished sketch or representation. **TO ROUGH-DRAW**, to draw or delineate coarsely. **ROUGH-DRAWN**, pp. **ROUGH-FOOTED**, a. feather-footed, as in the case of certain birds. **ROUGH-HEW**, v. *-hū*, to give the first form or shape to anything; to hew rudely. **ROUGH-HEWN**, pp.: **ADJ.** rugged; unpolished. **ROUGH-RIDER**, in the *army*, a non-commissioned officer who assists the riding-master of a cavalry regiment; one who breaks horses. **TO ROUGH A HORSE**, to break in, particularly for military service; to make its shoes rough. **ROUGH-SHOD**, a. having shoes armed with points. **TO RIDE ROUGH-SHOD**, to pursue a course selfishly, regardless of the consequences to others. **TO ROUGH-WORK**, to work coarsely, or without regard to nicety of finish. **ROUGH-WROUGHT**, a. done coarsely. **ROUGHINGS**, n. plu. *rŭf'ingz*, grass that follows mowing or reaping. **IN THE ROUGH**, in the original material; in an unwrought condition. **A ROUGH CUSTOMER**, in *familiar language*, a troublesome and somewhat dangerous person to deal with. **ROUGHEN**, v. *rŭf'n*, to make rough; to become rough. **ROUGHENING**, imp. *rŭf'nīng*. **ROUGHENED**, pp. *rŭf'nd*.—**SYN.** of 'rough, a.': rugged; austere; harsh; inelegant; coarse; uncivil; severe; rude; abrupt; indelicate; unpolished; unfinished; disordered; tempestuous; stormy; boisterous; hairy; uncut; uneven; shaggy; ragged; disordered; uncourteous; hard.

ROUGH RIDERS, a regiment of volunteers formed at the commencement of hostilities with Spain (see *SPANISH-AMERICAN WAR*), by Theodore Roosevelt (q.v.) 1898 and made up as follows:

Troops A, B, and C, from Arizona;

Troop D, from Oklahoma;

Troops E, F, G, H, and I, from New Mexico;

Troop K, from eastern cities and colleges;
Troops L and M, from Indian Territory.

The very last troop, K, left Washington May 8, and the regiment embarked for Cuba June 14, arriving on the 23d. On the 24th they helped to defeat the Spaniards at Las Guasimas, where Capt. Capron and Lieut. Hamilton Fish were killed. The regiment was under the command of Col. Wood and Lieut. Col. Theodore Roosevelt, the organizer. Together with the 1st, 6th, and 10th U. S. infantry, the R. R., after a desperate fight, captured the village of San Juan and a blockhouse, but suffered heavy loss. On Aug. 7 the regiment embarked at Santiago, at the surrender of which it was present, and sailed for Montauk Point, Long Island, where it remained in camp until mustered out, 1898, Sept. 13.

ROUHER, *rô-â'*, EUGÈNE: French statesman: 1814, Nov. 30—1884, Feb. 3; b. Riom. He distinguished himself first as an advocate at the bar of his native town, at which he practiced till 1848, when he was returned by the dept. of Puy-de-Dôme to the constituent assembly, and in the following year to the corps législatif. Toward the end of 1849, R. was appointed Minister of Justice in the second ministry of Louis Napoleon; and with slight interruptions, he was for 20 years a member of the French gvt. In the corps législatif, he showed himself a moderate politician; and he never affected to consider the Republic an improvement on the constitutional system which had preceded it. In 1852, he was appointed vice-pres. of the council of state, with oversight of the departments of legislation, justice, and foreign affairs. In 1855, he was appointed minister of agriculture, commerce, and public works, and found extraordinary opportunities for his administrative ability. R. was prominent in negotiation of the Treaty of Commerce with England, 1860. In 1863, he was appointed pres. of the council of state. Soon afterward he took the office of minister of the interior; and later was appointed minister of state. He held office till 1869, when he became pres. of the senate. He was, after the emperor, the chief representative of the system, domestic and foreign, which came to a disastrous end at Sedan; and was sometimes called the vice-emperor. After the fall of the empire, R. fled. Returning, he lived for a time under arrest. He was returned to the national assembly for Corsica 1872, and sat till 1875 as a staunch Bonapartist and defender of the ex-emperor. In 1876, he was returned for three separate arrondissements, but his election was annulled. His reputation as debater stood almost higher than his fame as administrator.

ROULADE, n. *rô-lâd'* [F.]: in *mus.*, an embellishment; a flourish; an ornamental passage of runs.

ROULEAU, n. *rô-lô'* [F. *rouleau*, a roll—from *rouler*, to roll (see **ROLL**)]: a little roll; a roll of coin made up in paper.

ROULERS—ROULETTE.

ROULERS, *ró-lŭ'*: town of W. Flanders, Belgium, 10 m. s.s.w. of Bruges. In the vicinity flax is extensively grown, and in the town linen is largely bleached and manufactured. Pop. (1887) 19,735.

ROULETTE, n. *rô-lĕt'* [F. *roulette*, a little wheel—from F. *rouler*; OF. *roller*, to roll—from mid. L. *rotulārĕ*, to roll—from L. *rotŭla*, a little wheel; *rota*, a wheel]: small instrument used by engravers to produce a series of dotted lines on a plate: game of chance (see below): a culinary delicacy.

ROULETTE, *rô-lĕt'*: game of chance which, from the end of the 18th c. till the beginning of 1838, was in vogue over all others in Paris. It continued to be played at German watering-places till 1872, when it ceased according to the terms of a law passed four years before. R. is still played at Monaco, in Italy. As much as \$40,000 a year used to be spent in the papers of Paris alone advertising this game, which, being purely one of chance, is a gamblers' game. It is played on an oblong table covered with green cloth, which has in its centre a cavity a little more than two ft. in diameter in the shape of a punch-bowl. This cavity has its sides fixed, but the bottom is movable round an axis in the centre. Round the circumference of this movable bottom are 38 holes, painted in black and red alternately, and numbered. Those who manage the table and keep the bank are called *tailleurs*; one of whom puts the movable bottom in motion and at the same instant throws into its cavity an ivory ball in a direction opposite to the motion of the bottom; the ball, after several revolutions, falls into one of the 38 holes above mentioned, the hole into which it falls determining the gain or loss of the players, each of whom has previously selected the number of the hole on which he stakes his money. There is an elaborate system of combinations of chances offering the tempting variety for selection in which gamblers delight. At Monaco, where this game is still (1891) in vogue, suicides are frequent of players who have staked and lost their all.

ROUMANIA.

ROUMANIA, or RUMANIA, *rô-mă'nă-a*: country comprising the two states, MOLDAVIA and WALACHIA—the so-called *Danubian Principalities*—which since 1861, Dec. 23, have been united under one prince and one administration, and officially bear the single name ROUMANIA or RUMANIA. Formerly subject to the Porte, R. proclaimed its own absolute independence 1877, and had its claim recognized at the Berlin Congress 1878. It was proclaimed a kingdom 1881. R. obtained the Dobrudscha (q.v.) 1878, and Roumanian Bessarabia (q.v.) was ceded to Russia. The area is 50,720 sq. m.—Pop. of R., though the loss of Bessarabia was not balanced by the gain of the Dobrudscha, (1889) 5,912,520.

1. MOLDAVIA (Ger. *Moldau*, Turk. *Bogdan*) is bounded n. and e. by Russia, s. by Walachia, w. by Hungary; area, since the cession of Bessarabia, about 15,000 sq. m. The country forms, geographically, part of the great plain of s. Russia, except toward the w., where there are spurs from the Carpathians. It is watered by the Pruth, the Sereth, and the Danube, and is almost everywhere fertile, producing grain, fruit, and wine. But the riches of the country consist mainly in its cattle and horses, of which immense numbers are reared on its splendid and far-stretching pastures; swine and sheep also are numerous; and the rearing of bees is extensive, favored by the multitude of lime-trees. The great plagues of the land are locusts and earthquakes. Minerals and precious metals are said to be abundant, but they have not been worked: there are a few salt-pits near Okna, in the Carpathian Mountains. Trade is almost exclusively in the hands of the numerous Jews, Germans, Greeks, and Russians who have settled in the country. The cap. of M. is Jassy (q.v.); but the great centre of trade is Galacz (q.v.), where, of late, several British merchants have established houses. The principal exports are grain, wool, lambs' skins, hides, feathers, maize, tar, tallow, honey, leeches, cattle, and salt (in blocks); the imports are chiefly the manufactured products of w. Europe. M. is divided into 13 districts, each of which has a prefect or gov., a receiver-gen. of taxes, and a civil tribunal consisting of a pres. and two other judges.

2. WALACHIA, the larger of the United Danubian Principalities, is bounded n. by the Austrian empire and Moldavia, e. and s. by the Danube, w. by the Austrian empire and the Danube; length from the w. frontier to Cape Kaliakra on the Black Sea, 305 m.; greatest breadth, 130 m.; 27,500 sq. m. The greater part of W. is flat; but in the n., where it borders on Hungary and Transylvania, it gradually rises into a great mountain-wall, impassable except in five places. It is destitute of wood throughout almost its whole extent; and especially along the Danube, is covered with swamps, miles on miles in breadth. The principal river flowing *through* the country is the Aluta, which joins the Danube at Nikopol. The climate is extreme; the summer heats

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are intense; in winter, the land lies under deep snow for four months. The principal products are corn, maize, millet, wine, flax, tobacco, and olive-oil. The vast treeless heaths afford sustenance to great herds of cattle, sheep, and horses. As in Moldavia, agriculture is an important industry. The swampy districts of the s. are inhabited by immense numbers of wild waterfowl. In minerals—especially gold, silver, copper, and rock-salt—the soil is rich, but only the salt is extensively worked. Bucharest is the cap. of Walachia and of Roumania.

ROUMANIA.—Administration.—The King of R.—till of late styled by the Roumans *Domnu* or *Domnitor*; officially called by the Sublime Porte, *Woiwod* (Prince); by the Turks generally, *Ijauer-Effendi* (Lord of the Unbelievers); and by the Russians, *Hospodar* or *Gospodarj* (Prince)—is now the head of an independent, constitutional, and hereditary monarchy. By the treaty of Paris (1856) and the Convention (1858), Moldavia and Walachia were politically united under one prince, with a special ministry for each country, two elective assemblies, and a central commission, which had its seat at Fokshani. But 1861, Nov., the Turkish sultan sanctioned the administrative union of the two states; and in the following month, it was publicly proclaimed at Bucharest and Jassy. The first ruler of R., Prince Alexander John Couza, was forced to abdicate 1866, when Karl I., son of the prince of Hohenzollern-Sigmaringen, was chosen his successor. At the same time, a new and more popular constitution was adopted by a constituent assembly elected by universal suffrage. The legislative power is vested in two houses, a senate, and a chamber of deputies. The former consists of 120 members, elected for eight years; and the latter of 183, elected for four years. The members of both houses are chosen by indirect election—i.e., the first voters nominate electors, who choose the members. All citizens who have reached their 25th year, and who can read and write, are voters in the first instance, and every Rouman who possesses a small yearly income is eligible for a seat in parliament. The king has a suspensive veto over all laws passed by both chambers. He is also chief of the executive, which is composed of a council of seven ministers, heads of the departments of the Interior, of Foreign Affairs, of War, of Finance, of Justice, of Commerce and Agriculture, and of Religion and Public Instruction. Judges are removable at the pleasure of the superior authorities. The legal codes are founded on the civil law and the customs of the Principalities; but though the system of jurisprudence has been much amended, many reforms remain to be effected, especially in administration of the laws, which is said to be most corrupt.

Religion.—The established religion of R. is that of the Greek Church, to which nearly the whole population belong; but all forms of Christianity are tolerated, and their professors have equal political rights. At the

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head of the Greek clergy stand the metropolitan archbishops of Moldavia and of Walachia, the latter of whom is primate of R. Every bishop is assisted by a council of clergy, and has a seminary for priests; the superintendent of the preaching clergy is the *Proto-papa* of the diocese. The ecclesiastical wealth of the country was formerly very great, but the increased expenditure that followed the union of the two states rendered a scheme of spoliation the only means left to the government to extricate itself from its difficulties—in a word, the convent-properties were wrested from the hands of the Greek monks, and placed under the administration of the state. It had been the fashion to establish such convents in Turkey as supports to the orthodox faith, and the institutions in the Principality itself were richly endowed in land and other ways: it was resolved to apply the revenues to the relief of national needs, such as schools, hospitals, the support of the poor, etc., and to give only the surplus to the clergy. This has considerably increased the revenue of the state. The administration, however, is now put on a better footing.

Education.—There are more than 2,700 elementary schools, besides normal schools, gymnasia, private schools, etc., in all about 2,500 schools. There are two universities. Education is gratuitous and compulsory. There are numerous French boarding-schools, and French is now the language of the educated circles, especially ladies (as Greek formerly was), but the state language and the proper national tongue is the Romanic.

Army and Navy.—In 1902 the permanent army (peace footing) comprised 3,280 officers, 60,000 men, 11,930 horses, and 390 cannon, and the war effective was 3,948 officers and 170,000 men, including the Dobrudscha division; in all about 174,000 officers and men. Under existing laws every male citizen on reaching his majority is liable to three years' service in the active army. His assignment is by lot, and all not drawn for the permanent army are assigned to the territorial army for four years' service in the cavalry and five years in the infantry. The army corps comprised 10,000 cavalry; 8,500 artil.; 4,000 engineers; 85,000 inf.; and 17,000 staff and general services. In 1902 the strength of the army on a peace footing was 3,280 officers, 60,000 men, 11,930 horses and 390 guns. The territorial army consisted of 72,000 men and 7,500 horses. The war strength was put at 3,948 officers, 170,000 men and 43,114 horses. The fortifications are at Galatz on the Danube, at Nemolassa on the Sereth and at Focsani to the n. w. near the Sereth. The navy 1902 comprised 1 protected 18 knot cruiser; 1 composite screw brig; 7 gun-boats; 8 torpedo boats; and several dispatch and revenue vessels.

Commerce.—In 1901 the imports were \$58,889,154; exports \$70,766,175; exports of cereals, chiefly wheat and maize, \$49,160,000.

Finances.—Public revenue is derived from direct and

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Indirect taxation, state monopolies, domains, and public works, such as railroads, post-offices, and telegraph service. The receipts for year ending 1889, Mar., were \$32,973,800; expenditures the same. State monopolies yielded the largest amount, then indirect taxation, direct taxation, domains, and public works. The expenditures included: public debt \$14,316,836; war \$7,283,427; financial administration \$4,342,795; and public education \$3,315,900. The capital of the public debt 1891, Apr. 1, was \$178,259,208; with interest charge \$11,585,390. In 1890, Oct., \$46,192,000 of 6 per cent. bonds were converted into a new 4 per cent. loan.

Race, Language, and Literature.—The great majority of the inhabitants are known in w. Europe as Walachs, but they call themselves Romëni. The Walachs, however, are not confined to the Principalities, but inhabit also the s. part of Bukowina, the greater part of Transylvania, e. Hungary, a part of the Banat, Bessarabia, districts in Podolia and Kherson, and portions of e. Servia. They are found also in Macedonia, Albania, and Thessaly. They are a mixed race, produced by amalgamation of Emperor Trajan's Roman colonists with the original Dacian population; and subsequently modified by Greek, Slavic, Albanian, Hungarian, and Turkish elements. This mixture is seen in their language, one half of whose words are Latin (the Dacian has disappeared), while the remainder is made up of words from the other languages. Roumanian literature, which may be said to date from the 16th c., is rich in popular songs, a collection of which were admirably translated into German by the queen of R. 1881. The chronicles of the country are not without interest. There are numerous political and other journals in the Roumanian tongue. For grammatical information, see Diez, *Grammatik der Romanischen Sprachen* (4th ed. 1877); the *Dictionariul* (1873) and the Glossaries of the Bucharest Acad.; and the admirable *Dictionnaire d'Etymologie Daco-Romane* (1880), by A. de Cihac.

Social Condition.—Very recent statistics on this point are not attainable. In Moldavia there are rather less, in Walachia considerably more, than 3,000 bojars, besides whom there is an extensive inferior nobility. In Walachia every 28th man is a nobleman, every 133d a merchant; and in the capital, every 20th is a merchant. The free peasants, or yeomen, called *Reseschs*, are not numerous—in all Walachia there are under 5,000. Gypsy communities are an important element in the population; more than 150,000 of this mysterious race are or were serfs belonging to the rich bojars and the monasteries. In 1844, about 30,000 were emancipated, and settled in colonies in different parts of the land: they call themselves *Romnitschel* or *Romni*. The common people are on the whole good-humored, frugal, sober, and cleanly; murder and larceny are almost unknown. Their dwellings, however, are most wretched;

composed chiefly of interlaced willow-withes, covered with mud, cane, and straw.

History.—In ancient times, Moldavia and Walachia formed an important part of Dacia (q.v.), and the two countries have in general experienced the same vicissitudes. At the period of the migration of nations, and in the following centuries, they were the scene of the struggles between the Gothic, Hunnic, Bulgarian, and Slavic races—the Avari, Chazars, Petschenegi, Uzi, and Magyars, who alternately ruled or were expelled from the country. These peoples all left traces (more or less) of themselves among the Romanized Dacian inhabitants, and thus helped to form that composite people, the modern Walachs, who, in the 11th c., were converted to the Christianity of the Eastern or Greek Church. Their incursions, however, frightfully devastated the country. In the 11th c., the Kumans, a Turkish race, established in Moldavia a kingdom of their own. Two centuries later, the great storm of Mongols broke over the land. It then fell into the hands of the Nogai Tartars, who left it utterly wasted, so that only in the forests and mountains was any trace left of the native Walachian population. In the latter half of the 13th c., a petty Walach chief of Transylvania, Radu Negru of Fogarasch, entered Walachia, took possession of a portion of the country, divided it among his bojars (noble followers), founded a senate of 12 members, and an elective monarchy; and gradually conquered the whole of Walachia. A little less than a century later (1354), a similar attempt, also successful, was made by a Walach chief of the Hungarian Marmarosh, of the name of Bogdan, to re-people Moldavia. In the beginning of the 16th c., both Principalities placed themselves under protection of the Porte, and gradually the bojars lost the right of electing their own ruler, whose office was bought in Constantinople. After 1711, the Turks governed the countries by Fanariot princes (see FANARIOTS), who in reality only farmed the revenues, enriched themselves, and impoverished the land. In 1802, the Russians wrested from Turkey the right of surveillance over the Principalities. A great number of the nobles—through family marriages with the Fanariots—were now of Greek descent, the court-tongue was Greek, and the religious and political sympathies of the country were the same. Hence the effort of the Principalities 1821 to emancipate themselves from Turkish authority, which was only the prelude to the greater and more successful struggle in Greece itself. In 1822, Russia forced Turkey to choose the princes or hospodars of Walachia and Moldavia from natives, and not from the corrupt Greeks of Constantinople; and after 1829, to allow them to hold their dignity for life. The Principalities, united under one ruler 1858, were brought under one administration 1861, and proclaimed a kingdom 1881, Mar. 27.

A military revolt 1866, Feb. resulted in the deposition

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of Prince Couza—Alexander John I. The Count of Flanders, younger brother of Leopold II. of Belgium, was unanimously chosen hospodar; but he at once declined the perilous honor. The choice of the Roumanians then fell on Prince Charles of Hohenzollern-Sigmaringen, who was proclaimed Prince of R. 1866, Apr. 20. The existing constitution was then adopted. When war broke out between Russia and Turkey, 1877, Apr., R. signed a convention with Russia, guaranteeing the Russian troops free passage through Rumanian territory; and May 21 the chamber of deputies at Bucharest decreed the independence of R. War was declared with Turkey; and the Roumanian army bore a creditable part in several battles, especially before Plevna. The Berlin Congress of 1878, which revised the treaty of San Stefano, concluded between Russia and Turkey, and has attempted the most recent solution of the 'Eastern Question,' agreed to recognize the independence of R. It resolved however, much against the will of the government and people of R., to restore to Russia the portions of Bessarabia (q.v.) touching the Pruth and Danube, which were given by the treaty of Paris to Moldavia 1856; and, by a rough sort of compensation, R. received the Dobrudscha (q.v.). It was stipulated that religious dissent should not exclude from civil rights.

ROUMELIA, *rô-mē'li-a* (Turkish, *Rumili*): indefinite term for an important portion of European Turkey, differing widely in area at various times; but denoting generally the region between the Balkans and the Ægean, corresponding to anc. Thrace and part of Macedonia.

ROUME'LIA, EASTERN: province of the Ottoman empire, immediately s. of the Balkans, 13,830 sq. m. Though remaining under the military and political authority of the sultan, it had administrative autonomy conferred on it by the Berlin Congress of 1878. Internal order is maintained by a native gendarmerie and a local militia. The gov.gen., nominated by the Porte, must be ecclesiastically a Christian, and the constitution is settled by a European commission. Since 1885, R. is practically united with Bulgaria (q.v.), the Prince of Bulgaria being appointed gov.gen. of E. Roumelia.—Pop. (1880) 815,946, of whom 573,560 Bulgarians; (1900) 1,099,984.

ROUN, v. *rown* [Ger. *raunen*; Dut. *roenen*, to whisper: Sp. *runrun*, rumor, report]: in *OE.*, to address in a whisper; to whisper. ROUN'ING, imp. ROUNED, pp. *round*. Also spelt ROUND and ROWN.

ROUNCE, n. *rows* [probably a mere corruption of *round*—that is, an *in* and *out* again]: the handle of a printing-press, by which the carriage with the form of type is run in under the platen and out again.

ROUND, a. *rownd* [F. *rond*; Ger. *rund*; OF. *roönd*—from L. *rotundus*, round—from *rota*, a wheel: It. *ritondo*, circular]: circular; globular; smooth or flowing, as sound or language; not defective or abrupt;

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not inconsiderable; large, as a *round* sum; quick, as to travel at a *round* rate; bold, as a *round* assertion; in *OE.*, plain; free without delicacy or reserve: AD. on all sides; every way; not in a direct line; circularly: PREP. on every side of; about; all over: N. a circle; a globe; a sphere; an action or passage in a circle returning to the point of commencement; a walk or circuit performed by a guard or an officer among sentinels; a revolution or rotation; a succession or recurring series, as of duties; the step of a ladder; a volley, as of firearms by troops: in *music*, a short song or catch in parts returning to the same point in the performance (see below): in *OE.*, a dance: V. to make circular; to become round; to encircle; to make protuberant; to make full, smooth, and flowing, as in writing or speaking; to take the edge off anything; in *thieves' slang*, to become an informer; in *OE.*, to grow round in form. ROUND'ING, imp. ROUND'ED, pp. ROUND'LY, ad. -*lī*, in a round form; in *OE.*, openly; plainly; completely; vigorously; to the purpose. ROUND'NESS, n. -*nēs*, the quality or state of being round; cylindrical form; fulness or smoothness of flow; boldness. ROUND'ISH, a. -*īsh*, nearly round. ROUND'ABOUT, a. -*a-bowt*, indirect; circuitous; loose: N. a horizontal revolving-wheel at fairs on which children ride: PREP. around. ROUND-HAND, in *penmanship*, a style in which the letters are formed round and full. ROUND-SHOULDERED, a. having a round back or shoulders. ROUNDHEAD, a term of reproach given to Puritans and the adherents of parliament during the wars of Charles I. who wore their hair closely cut, while the Cavaliers wore theirs in long ringlets. ROUNDHOUSE, the cabin or apartment on the after part of the quarter-deck of a ship; *formerly*, a prison or watch-house. ROUND NUMBER, a number which ends in a cipher, or that is divisible by ten; a complete or full number; an approximate number. AT A ROUND RATE, rapidly. ROUNDRIIDGE, to form round ridges by plowing. ROUND ROBIN, n. *rōb'in* [said to be a corruption of F. *rond*, round; *ruban*, a ribbon]: a written petition or memorial, of the nature usually of a protest or remonstrance, signed with the names arranged in a circle so as not to show who signed first. ROUND TABLE, the table around which King Arthur and his knights sat. ALL ROUND, in every direction. TO BRING ROUND, to restore; to bring to a satisfactory issue; to revive. TO COME ROUND, to revive; to become more placable. TO GET ROUND, to recover; to wheedle; to become able to exercise undue influence over. A ROUND OF CARTRIDGES, one cartridge to each man. A ROUND OF BEEF, the thick fleshy part of the thigh cut through and across the bone at the top. TO ROUND TO, among *seamen*, to turn the head of a ship toward the wind.—SYN. of 'round, a.': cylindrical; circular; spherical; orbicular; whole; unbroken; globular; globose; orbed; full; plump; rotund; —of 'roundness'; rotundity; circularity; plumpness.

ROUND—ROUND-FISH.

ROUND, v. *round*: in *OE.*, to whisper. **ROUND'ING** imp. **ROUND'ED**, pp. See **ROUN**.

ROUND, in Music: short vocal composition, generally gay, humorous, in three or more parts, all written on the same clef. Each voice takes up the subject at a certain distance after the first has begun. The second voice begins the first part when the first begins the second part, and the third takes up the first part when the second begins the second part, the whole ending together at the mark of a pause, \neg , or a signal agreed on.

ROUND, **WILLIAM MARSHALL FITTS**: author: b. Pawtucket, 1845, Mar. 26. After an academic education, he began studying medicine at Harvard, but was compelled by ill health to abandon the course, and subsequently engaged in journalism. He was a U. S. commissioner to the Vienna exhibition 1873. While engaged in literary work in New York he became interested in the prison reform movement; 1883 was elected cor. sec. of the N. Y. Prison Assoc.; 1885 aided in the reorganization of the National Prison Assoc. and became its sec.; and 1886 was a delegate to the International Penitentiary Congress in Rome. His experience abroad led him to plan the Burnham industrial farm scheme for unruly boys, at Canaan Four Corners, N. Y., 1887-8. He has published *Achsa* (1876); *Child Marion Abroad* (1876); *Torn and Mended* (1877); *Hal* (1878); and *Rosecroft* (1880).

ROUNDEL, n. *round'él*, or **ROUND'ELAY**, n. *-ě-lā* [*F. rondeau*; *OF. rondel*, a rhyme or sonnet that ends as it begins—a dim. of *rond*, round]: a song or dance in which the passages or parts are repeated; small circular shield carried by soldiers in the 14th and 15th c. (see **RONDEAU**); the guard of a lance; a round guard for the armpit: in *fort.*, a bastion of a circular form: in *her.*, a sub-ordinary in the form of a circle: in *ord.*, a disk of iron having a central aperture, through which an assembling-bolt passes. It serves to separate the stock and cheeks.

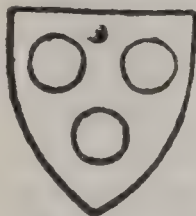
ROUND-FISH (*Coregonus quadrilateralis*; see **COREGONUS**): fish found in w. parts of N. America, from Vancouver's Island northward, in the rivers on the w. side of the Rocky Mountains, and in the Mackenzie and Coppermine rivers. It ascends the rivers in summer to spawn, spending part of its life, like the salmon, in the sea. It is a beautiful fish; seldom more than 2 lbs. in weight, of yellowish-brown color, paler on the sides and belly than on the back, with bright and glittering scales, each edged with a narrow band of dark gray; the mouth very small, no teeth perceptible. Before spawning, it is loaded with fat, which, on the shoulders, almost amounts to a hump; but after spawning, it becomes thin, and its flesh watery and insipid. In a good state, it is delicious food, rivalling in excellence its congener, the Whitefish (q.v.). This fish is an important article of food to the Indians of n.w. America, and vast numbers are caught in the rivers as they ascend from the sea. They ascend in such numbers that no ordinary contrivances of fish-

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ing are necessary, but the fish are baled out by baskets, little nets, wooden bowls, or even by the hand. They are cured by splitting and drying, like salmon. The R. readily takes a rough gaudy fly.

ROUNDISH: see under **ROUND**.

ROUNDLE, or **ROUNDLET**, *round'let*, in Heraldry: general name for charges of circular form.



Roundle.

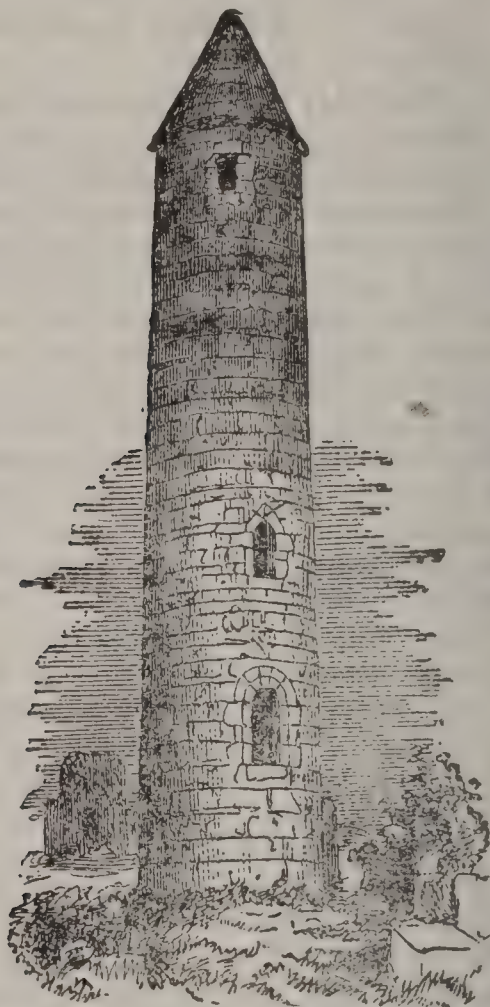
ROUND TABLE, KNIGHTS OF THE: see **ARTHUR: NOVELS**.

ROUND TOWERS: tall narrow towers tapering gradually from the base to the summit; found abundantly in Ireland, and occasionally in Scotland: they are among the earliest and most remarkable relics of

the ecclesiastical architecture of the British islands. They have been the subject of endless conjecture and speculation among antiquaries, who have connected them with pagan times and pagan rites; but the controversies regarding them have to some extent been set at rest by the investigations of Dr. Petrie; and there can be now no doubt that they are the work of Christian architects, for religious purposes. They all seem to have been in the immediate neighborhood of a church or monastery, and like other early church-towers (an older invention than bells), they served as symbols of dignity and power—while they were also capable of being used as strongholds, into which, in times of danger, the ecclesiastics, and perhaps the inhabitants of the country around, could retreat with their valuables. After the introduction of bells, they were used probably also as bell-towers. About 118 towers of this description are yet standing in Ireland—20 of which are entire or nearly so; and Scotland has three at Brechin, Abernethy, and St. Eglishay in Orkney. They are usually capped by a conical roof, and divided into stories sometimes by yet existing floors of masonry, though oftener the floors have been of wood. Ladders were the means of communication from story to story. There is generally a small window on each story, and four windows immediately below the conical roof. The door is in nearly all cases a considerable height from the ground. The tower at Devenish, in Ireland (see ill.), a typical example of the class, is 82 ft. high, with conical cap. A battlemented crown occasionally supplies the place of the conical roof, and in one instance the base of the tower is octagonal. Dr. Petrie is inclined to think that a few of these remarkable structures may be as old as the 6th c.; but this great antiquity has been questioned by later writers, particularly Dr. Daniel Wilson, who, from the architectural details, assigns them all to the period 9th—12th c. The source whence this form of tower was derived, and the cause for its long preference by the Irish architects, are unknown. Two round towers, similar to the Irish type, are in the yet extant plan of the monastery of St. Gall in Switzerland, of the first

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half of the 9th c. ; and, in the Latin description attached to the plan, they are said to be *ad universa superspicienda*. The church and towers as rebuilt at that date are no longer in existence; but the towers were introduced probably in honor of the founder of the monastery, leader of a colony of Irish monks, who, early in the 6th c., carried civilization and Christianity into the fast-



Round Tower, Devenish, Ireland.
(From Fergusson's *Hand-Book of Architecture*.)

nesses of the Alps. The form thus introduced became traditional in w. Germany in the succeeding Romanesque style, where it is seen reproduced with little modification at Worms Cathedral and elsewhere. See Dr. G. Petrie's *Ecclesiastical Architecture of Ireland* (Dublin 1845); Lord Dunraven's *Irish Archaeology*, II. (Lond. 1877); Dr. J. Anderson's *Scotland in Early Christian Times* (Edin. 1881).

ROUNDURE, n. *round'ūr* [see ROUND]: in OE., circumference; inclosure.

ROUP, n. *rowp* [AS. *hrepan*, to cry, to call out; *hreop*, cried, called out: Dut. *roepen*, to call; *roep*, a call, a cry]: in Scot., a sale of goods by auction: V. to expose to sale by auction. ROUP'ING, imp. ROUPED, pp. *rowpt*. ARTICLES OF ROUP, conditions under which property is exposed to sale by auction: see AUCTION.

ROUP—ROUSES POINT.

ROUP, n. *rôp* [mid. L. *rupia*, foul scurf] : a disease in poultry.

ROUSANT, a. *rows'ant* [F.] : in *her.*, applied to a bird in the attitude of rising, as if preparing to take flight.

ROUSAY, *rô'sā*, or **ROWSA**, *row'sā* : one of the Orkney Islands, between the island of Westray on the n., and Pomona on the s.; 4 m. long, 3 m. broad; hilly, and covered with heath in the centre, but with margin of fertile land along the shore. Pop. (1891) 774.

ROUSE, v. *rowz* [Low Ger. *ruse*, noise, disturbance; Ger. *rauschen*, to rustle: Sw. *rusa*, to rush: Gr. *rhoizos*, any rushing sound, as the whizzing of an arrow; the original sense is preserved in a *rousing fire*—viz., a roaring crackling fire; a *rousing lie*, a very great or astounding lie]: to raise from sleep, or from dulness and inactivity; to excite to thought or action; to drive, as a beast from its lair; to awake. **ROUS'ING**, imp.: **ADJ.** exciting; having power to rouse. **ROUSED**, pp. *rowzd*. **ROUS'INGLY**, ad. *-li*.

ROUSE, v. *rowz* or *rôz* [Scot. *roose*, to praise: Sw. *rus*; Ger. *rausch*, drunkenness: Gael. *roiseal*, a boast]: in *OE.* and *prov. Eng.*, to praise; to extol; to boast, as when touched with liquor: N. in *OE.*, a bumper; a deep draught; excess of drinking.

ROUSES POINT, *rowss'iz poynt*: incorporated village in the town of Champlain, Clinton co., N. Y., named from Jacques Rouse, a Canadian, who settled here 1783. It is pleasantly situated at the n. end of Lake Champlain, $\frac{1}{2}$ m. s. of the Canadian boundary, 24 m. n. by e. from Plattsburgh. It has exceptional facilities for commercial traffic, being a junction of the Canada Atlantic, the Canadian Pacific, the Central Vermont, the Delaware and Hudson, the Grand Trunk, and the Ogdensburg and Lake Champlain railroads, and a port of entry with water communication from the lakes of Canada to the Atlantic *via* Richelieu river, Lake Champlain, Delaware and Hudson canal, and Hudson river. The village contains 4 churches, handsome public school, Rom. Cath. parochial school, excellent hotels, and is growing as a business centre and as a summer resort. It has an abundant water supply. The principal industries are the Champlain Electrotpe (book) works, 206 employés, and a box factory and planing-mill. At a little distance n. of the village, commanding the entrance to Lake Champlain, is Fort Montgomery, built where the Richelieu river commences, which connects the lake with the St. Lawrence. The erection of the fort was begun soon after the war of 1812, but 1818 was found to be on Canadian ground and was abandoned, and became known as Fort Blunder. By the Ashburton treaty 1842 it was ceded to the United States, and ultimately completed at the cost of about \$2,000,000.—Pop. (1880) 1,485; (1890) 2,100; (1900) 1,675.

ROUSSEAU.

ROUSSEAU, rō-sō', JEAN JACQUES: French author, notable not less for his personal peculiarities and strange fortunes and misfortunes, than for the brilliancy and sentimental enthusiasm of his writings: 1712, June 28—1778, July 2; b. Geneva; of a family originally French, which had been settled there more than a century and a half. His father Isaac R. was a watchmaker. Deprived of his mother a few days after his birth, R. was cared for by his father's sister. At the age of ten he was placed, with a cousin, under the charge of a Prot. pastor of Bossey, near Geneva, with whom he remained two years. At the age of 15 the profession of *procureur* ('attorney') was chosen for him, and he was sent to acquire a knowledge of engrossing, but was soon dismissed as a hopeless subject. In 1725, he was apprenticed to an engraver of Geneva, Abel Ducommun, a harsh and violent man, from whose vulgar tyranny the sensitive and impulsive youth took refuge in flight (1728). Henceforth, to the end of his harassed and melancholy career, he was a wanderer; resting for a brief space in many homes, and making many friends, but always driven from the homes, and robbed (or thinking himself robbed) of the friends. His first protector was a young widow, Madame de Warens, at Annecy, to whose house he was sent in view of his abjuration of Protestantism, and by whose exertions he was placed at a charity-school in Turin. This protector, nominally a convert from Protestantism, was, after the fashion of the women of her time, really a deist with a dash of sentimental theories, and indulging herself in easy morals and good nature. At the school R. was so miserable that he ran off, lived ambiguously for some time with the wife of a merchant, but in spite of his 'innocent passion' was properly kicked out of doors by the irritated husband on his return; after which he became a lackey in the house of the Countess of Vercelli, where (as stated by himself in his *Confessions*) he stole a silk ribbon, and then accused a maid of the theft—in consequence of which both were dismissed. Finally, after certain vagabond adventures he returned to his protectress, Madame de Warens, then at Chambéry; but again fell into irregular courses, whereupon she conceived the amazing idea of rescuing the youth (now in his 21st year) from the temptations of vice by becoming his mistress herself. To preserve appearances, however, R. always addressed her as *Mamma*. In 1736, she took R. for his health to a country-house at Les Charmettes, near Chambéry. Here (1738) R. fell into a state of hypochondria, and went to Montpellier for medical treatment, but on his way thither fell in with a Madame de Larnage whose charms dissipated all his morbid delusions. On his return he found that Madame de Warens had consoled herself during his absence by another lover, whereupon he betook himself to Lyon, and lived as an unsuccessful house-tutor for three years. Thence he proceeded to Paris, not without some letters of intro-

duction, in the autumn of 1741—under the conviction that he had made certain grand improvements in musical notation (of which in fact he hardly knew the elements), and read a paper on the subject before the *Académie des Sciences*, but was told that his ‘improvements’ were ‘neither new nor practicable.’ However he managed to live here in an obscure way until, through Madame Dupin, to whose house he had obtained entry, he got the appointment of sec. to De Montaigu, French ambassador at Venice. After a stay of 18 months in the city of islands, he returned to Paris; and having found his superior intolerable, quitted him, and became intimate with Diderot, Grimm, D’Holbach, and Madame d’Épinay, the last of whom, 1756, provided a charming retreat for him in the vicinity of Paris, called the *Hermitage*. There he lived with a young girl Thérèse le Vasseur, a servant at the inn, uneducated, and with little beauty, who bore him five children, all of whom were sent by him to the Foundling Hospital—perhaps the most scandalous act of his strange life. R. late in life married Thérèse, who seems to have been a faithful and affectionate creature. The causes of his rupture with the clique of Parisian philosophers and fine women, to which he had been introduced by De Mably’s letters, have been the subject of envenomed misrepresentation in France, but from the thorough researches of Morin (see *Essai sur la Vie et le Caractère de J. J. Rousseau*, Paris 1851), it appears that R. was the victim as usual partly of his own folly, but also more in this case of an odious conspiracy. The conduct of Grimm, in which Madame d’Épinay was involved, was especially shocking. Driven from the Hermitage 1757, he found temporary asylum with the amiable Duke and Duchess of Luxembourg; but, 1762, his writings were pronounced immoral, and to escape arrest he fled to Switzerland, and fixed himself at Motiers-Travers in Neuchatel, under protection of Lord Keith (Earl Marischal), gov. of that Prussian province. The intrigues of his enemies pursued him even thither, and after certain paltry persecutions, lay and clerical, he accepted the offer of David Hume to visit England 1766. As so often in similar cases previously, his caprices caused misunderstandings with the Scotch philosopher and his other English friends; and in the following year R. returned to France, and was installed in the castle of Trye by the Prince of Conti. He did not remain long there, nor did he find peace. Gross calumnies were circulated against him, and once more he sought security in precipitate flight. In 1770, he reappeared in Paris, where he lived in obscurity, but not in tranquillity, for eight years, when M. de Girardin offered him a refuge at his estate of Ermenonville, near the capital, in the beginning of 1778; and here the unhappy R. died, probably from a fit of apoplexy, in the same year.

R’s personal character is a puzzle to moralists. There is no denying the vices and meannesses which stained it: these rest on the most unimpeachable testimony—

his own. They are set forth with copious and melancholy sincerity in his *Confessions*, and the very incidents that lead us to condemn him most severely would never have been known to the world had he not chosen to reveal them. But he does not exculpate himself (as many suppose); on the contrary, he covers himself often with bitter and sad reproaches. On the whole, we may incline to believe that he was a warm-hearted, impulsive creature—free from trickiness and suppleness; but full of jealousy and caprice, and with a morbidly excitable natural temperament, aggravated by long persecutions into actual insanity. The errors of such a volatile and irascible nature, unchecked by a moral will, are scandalous; and R.'s great defect was in strength of will. 'A man in convulsions,' says Carlyle, speaking of R. (*Heroes and Hero-worship*), 'is not strong, though six men cannot hold him;' and all through R.'s spasmodic life, and the splendid sentimentalism of his writings, we are conscious of a 'forcible feebleness,' a lack of genuine intellectual power and insight. He was thoroughly a sentimentalist—that, rather than a deist, as he has often been classed; knowing no religion but a transient emotionalism, and no morality which was not a mere embroidery on that thin fibre. He must be deemed probably insane during the last 15 years of his life. His opinions in a philosophical point of view are valueless; men of any vigor or acuteness care nothing for his notions about the social contract—influential though they once were during that period of crazy enthusiasm and sham speculation, the French Revolution; nor for his shallow paradox of panegyrics on the 'Savage State;' but when he paints the emotions of love, the rose-colored charm of his genius is irresistible; in this limited field he holds a high place in literature. The most famous of his productions are *Discours sur l'Origine et les Fondements de l'Inégalité parmi les Hommes* (Amst. 1755); *Julie, ou la Nouvelle Héloïse* (1760); *Du Contrat Social, ou Principes du Droit Politique* (Amst. 1762); *Emile, ou de l'Éducation* (Amst. 1764); and *Les Confessions, suivies des Réveries d'un Promeneur Solitaire* (Geneva 1782; posthumous); but beside these he wrote a vast number of miscellaneous essays, letters, and treatises. His *Œuvres Complètes* have gone through innumerable editions. See Morley's monograph (1873).

ROUSSEAU, LOVELL HARRISON: soldier: 1818, Aug. 4—1869, Jan. 7; b. Lincoln co., Ky. He left school when quite young, but after attaining his majority studied law, and was admitted to the bar 1841; was a member of the Indiana legislature 1844-5; served in the Mexican war, and afterward was in the Indiana senate two terms. He was a successful lawyer in Louisville 1849-61, was a member of the state senate at the opening of the civil war, used his influence to keep the state loyal to the Union, resigned his seat 1861 and organized troops for the Federal army, served with great credit during the war, and reached the rank of maj.gen. vols. He was

ROUSSEAU--ROUT.

elected to congress 1865, became brig.gen. U. S. army 1867, was on duty at Alaska 1867-8, and in the latter year was assigned to the department of Louisiana. He died at New Orleans.

ROUSSEAU, PHILIPPE: French *genre* painter: b. Paris 1808. He exhibited landscapes first, after study in various lines under leading masters, but afterward applied himself much to animal painting, especially in illustrating fables, like those of La Fontaine. Among his pictures are *The Rat of the Town and the Rat of the Country*; the *Wolf and the Lamb*; *The Photographic Ape* (1868). His productions were often engraved for illustration of books, and thus became familiar to the public.

ROUSSEAU, THÉODORE: French landscape painter: 1812, July 15—1867, Dec. 22; b. Paris. He studied nature, with scarcely any instruction from a master, and is eminent as the pioneer of the contemporary realistic school of landscape, the leader in discarding the old formal, classical, and mythological school, that esteemed a Greek temple, or god, or hero, a necessary adjunct of every scene. His style, however, was not photographic, but an energetic, sometimes apparently rough and careless rendering of effect, rather than of detail. He exhibited first 1834. His subjects were mostly woodland and river, often with bold Turner-esque effects of light. He died at Barbison, in the forest of Fontainebleau, which he loved to paint.

ROUSSEAUITE: see **KALONG**.

ROUSSILLON, *rô-sêl-yông'* or *rô-sê-yông'*: formerly a province of France, bounded n. by Languedoc, e. by the Mediterranean, s. by the Pyrenees, w. by the county of Foix. It now forms the French dept. of the Pyrénées Orientales. In ancient times the cap. was *Ruscino*, in the vicinity of Perpignan.

ROUSTABOUT, n. *rowst'a-bowt* [prob. from *roost* and *about*]: laborer employed in loading and unloading heavy freight on board a steamer.

ROUT, n. *rowt* [OF. *route*, a discomfiture: It. *rotta*, the overthrow of an army: L. *ruptus*, broken (see **ROUT** 4)]: the defeat of an army or body of troops; the confusion and disorder attending a defeat: V. to break the ranks of a body of troops, and put them to a disorderly flight; to put to confusion by a repulse or a defeat. **ROUT'ING**, imp. **ROUT'ED**, pp.—**SYN.** of 'rout, v.': to defeat; discomfit; beat; overpower; overthrow; conquer.

ROUT, v. *rowt* [see **ROOT**]: to search and grub in the ground, as swine. **ROUT'ING**, imp.: **ADJ.** searching or grubbing in the ground. **ROUT'ED**, pp.

ROUT, v. *rowt* [Icel. *rauta*, to roar, bellow]: in *OE.*, to snore; to bellow, as oxen.

ROUT—ROVE.

ROUT, n. *rowl* [prov. F. *rota*, tumult: OF. *route*, overthrow, a disorderly crowd: Ger. *rotte*, a gang, a crowd: L. *ruptus*, broken—from *rumpĕrĕ*, to break]: tumultuous clamorous crowd; rabble.—*Rout* was one of the absurd names in London at the end of the 18th and in the early part of the 19th c. for a fashionable assembly or large evening-party now known as a ‘soirée,’ or an ‘at home.’ At these entertainments, as many as 2,000 or 3,000 ladies and gentlemen were invited, and when the apartments were not sufficiently spacious for the company, temporary rooms were erected in the rear of the house, and elegantly fitted up. For an amusing account of routs, see Mrs. Stone’s *Chronicles of Fashion*, II., 262. To **ROUT ABOUT**, to move about uneasily; to make a disturbance.

ROUTE, n. *rôt* [F. *route*; OF. *rote*, a trace, a way—from mid. L. *rupta*, a road—from L. *ruptus*, broken; *rumpĕrĕ*, to break]: the road or way which has been travelled or is to be passed; course; road; journey.

ROUTINE, n. *rô-tĕn’* [F. *routine*, rote—from OF. *rote*; F. *route*, a road—from mid. L. *rupta*, a road—from L. *ruptus*, broken; *rumpĕrĕ*, to break]: the round or daily course of business or official duties; any regular habit which does not accommodate itself to circumstances.

ROUX, n. *rô* [F. *roux*; It. *rosso*, red russet—from L. *russus*, red]: mixture of flour and butter baked together, used to thicken soups or gravies. White R. is prepared by putting butter into a well-tinned stew-pan, and dissolving it gently over the fire until it begins to simmer, when fine flour is dusted in with a dredge, and carefully incorporated to thicken it sufficiently. The brown R. is made by keeping the R. longer over the fire.

ROVE, v. *rôv* [connected with Eng. *reeve* 2, and *ravel*: Scot. *rove*, to card wool into flakes: Icel. *rifa*, to tear asunder]: to draw through an aperture or eye, as wood or cotton: in Scot., to card wool or cotton into flakes; in prov. Eng., to turn into thread, as ‘to rove a stocking’: N. a roll of wool drawn out and slightly twisted. **RO’VING**, imp.: N. the operation of giving the first twist to yarn by drawing it through an eye or aperture (see **SPINNING**). **RO’VINGS**, n. plu. *-vĭngz*, the threads which come from the ends of ribbons or other silken materials. **ROVED**, pp. *rôvd*. **ROVING-FRAME**, the machine employed in roving wool or cotton.

ROVE, v. *rôv* [Dut. *roover*, a robber, a pirate; *rooven*, to rob: Icel. *rafa*, to wander about]: to move about without certain direction in any manner; to wander; to ramble; to wander over. **RO’VING**, imp.: N. act of one who roves; a rambling; a wandering. **ROVED**, pp. *rôvd*. **RO’VER**, n. *-vér*, one who wanders about; a pirate. **RO’VINGLY**, ad. *-lĭ*. **RO’VINGNESS**, n. *-nĕs*, the state of roving.—**SYN.** of ‘rove’: to wander; ramble; stroll; roam; range; move about.

ROVE BEETLE—ROVIGNO.

ROVE BEETLE, or **COCKTAIL** (*Staphylinus*): genus of coleopterous insects, type of a family, *Staphylinidæ*, to very many of which the same English names are often extended; belonging to the section *Coleoptera Pentamera*, tribe *Brachelytra*, of which a chief characteristic is the short square elytra, which leave the greater part of the abdomen exposed. The abdomen is soft and flexible, and these insects have a habit of turning up the point of it, particularly when annoyed, whence the name *Cocktail*. They feed on carrion; their larvæ, however, frequently choose vegetable food, e.g., young wheat—cutting the stem underground with their strong mandibles. The bite of some of the species is popularly believed to cause bad sores. The species are numerous, both in Europe



Rove Beetle (*Staphylinus olens*).

a, insect with tail cocked; *b*, insect with wings expanded; *c*, head, magnified to show the opened jaws and other parts of the mouth.—(Copied from Morton's *Cyclopædia of Agriculture*.)

and America. Many have a fetid odor; a few have odors resembling those of fruits and flowers.

ROVEREDO, *rō-vā-rā'dō*: city of Austria, in the Tyrol, in a beautiful and picturesque site in the Lagerthal, on the banks of the Leno, close to the left bank of the Adige, 12 m. s. of Trient by railway. R. is one of the most flourishing towns in the Tyrol, and centre of the silk-trade. It contains 60 factories, employing 2,300 hands. There is some trade in wine and an active transit-trade. R. was the scene of a battle between the French and Austrians 1796, Sep. 3, 4, in which the latter were defeated.—Pop. (1880) 8,864; (1890) 9,030.

ROVIGNO, *rō-vēn'yō*: trading-town and seaport of Istria, on a rocky promontory which forms a double harbor 45 m. s. of Trieste. The best Istrian wine is grown in the vicinity, which is abundantly productive also of oil; 30,000 casks of olive oil are exported annually. Ship-building, and tunny and sardine fisheries are chief industries. Pop. (1880) 9,522; (1890) 9,662.

ROVIGO—ROW.

ROVIGO, *rō-vē'gō* : city in Italy, cap. of the province of R. ; on the Adigetto, 38 m. s.w. of Venice. It is a handsome fortified city ; has a cathedral which contains some fine paintings, and a picture-gallery. Pop. (1881) 7,272 ; commune 11,460.

ROVIGO, Duke of : see **SAVARY**.

ROVUMA, *rō-vō'mâ* : river of s.e. Africa, which enters the Indian Ocean by a spacious bay n. of Cape Delgado. Only a small portion near its mouth was known to Europeans till 1861, when Drs. Livingstone and Kirk ascended it about 30 m. In 1862, with two ships' boats, they reached the rapids which limit the navigation, more than 100 m. from the coast, and half-way to the Nyassa Lake. Passing through gloomy, unhealthful forests of mangroves, they entered a healthful plain, covered with heavy timber and brilliantly flaming tropical plants ; but the country was infested by the 'tsetse fly,' a serious obstacle to its development. The river abounded with hippopotami. R. is joined by the Niende, a large affluent from the s.w. ; while the main stream comes from the w. and n.w. As the R. is navigable only a few months of the year, it offers little advantage for commerce : but it affords an entrance for exploring the regions between the Nyassa and Tanganyika lakes. In 1878 the sultan of Zanzibar sent an expedition to the Upper R. to settle disputes between the tribes there ; and at the same time he succeeded in establishing a station on the river. Both Dr. Livingstone and Dr. Kirk, who were unable to pass the rapids which obstruct it, concluded that water-carriage to the Indian Ocean by the R. was impossible. The reported coal of the R. was found 1881 to consist of a bituminous shale of no commercial value.

ROW, v. *rō* [Dut. *roede*, a rod, an oar ; *roeden*, to row : Ger. *ruder*, an oar : Sw. *ro* ; Dan. *roe* ; AS. *rowan*, to row] : to propel with oars, as a boat ; to labor with the oar : N. an excursion in a boat with oars. **ROW'ING**, imp. : N. the act or practice of one who rows. **ROWED**, pp. *rōd*. **ROWER**, n. *rō'ér*, one who rows. **ROWLOCK**, n. *rō'lōk*, the part on which the oar rests in rowing. **ROWPORT**, one of the little openings in small vessels of war for rowing in calms.

ROW, n. *rō* [AS. *ræwe* ; Ger. *reihe*, a row or line : It. *ruga* ; F. *rue*, a row of houses — from mid. L. *ruga*, a furrow, a path, a street] : a line ; a file ; a series of persons or things placed in a straight line ; a line of houses ; a street.



Ship's Boat.
a, a, Rowlocks (notched).

ROW—ROWAN.

ROW, n. *row* [Swiss, *rauen*, to make a dull, hollow, muttering sound: Low Ger. *ruse*, noise, tumult (see ROUSE 1)]: a noisy disturbance; a riotous noise; a broil; a tumult: N. to scold noisily. **ROW'ING**, imp. **ROWED**, pp. *rowed*. **ROWDY**, n. *row'di*, a riotous, turbulent fellow. **ROW'DY-DOW**, n. *-dow* [an imitative word]: a word expressive of continuous noise. **ROW'DYISH**, a. *-ish*, characterized by the manners of a rowdy. **ROW'DYISM**, n. conduct of a rowdy; noisy riotous black-guardism.

ROW, v. *row* [a form of ROLL]: in *Scot.*, to roll; revolve.

ROWAN, *rō'an*, **STEPHEN CLEGG**: 1808, Dec. 25—1890, Mar. 31; b. near Dublin: naval officer. He came to the United States in early boyhood; was appointed midshipman in the U. S. navy 1826; was promoted passed midshipman 1832, lieut. 1837, commander 1855, capt. 1862, commodore 1862, rear-admiral 1866, and vice-admiral 1870; and was retired 1889. He was on sea duty 25 years, shore and other duty 30 years, and unemployed 10 years. **R.** was active in the naval operations in the Mexican war; commanded in the first naval action in the civil war; took part in the combined army and navy attack on Roanoke Island; captured or destroyed the Confederate works and fleet in Albemarle Sound; forced the surrender of the works at Newbern, N. C.; commanded the *New Ironsides* in the operations in Charleston harbor; and received a vote of thanks from congress for his naval services.



Rowan, or Mountain Ash (*Pyrus aucuparia*).

ROWAN, *rō-an*, **TREE**, or **MOUNTAIN ASH**, or **QUICKEN TREE**, sometimes **RO'AN TREE** (*Pyrus aucuparia*; *Sorbus aucuparia* of many botanists); tree abundant in Britain,

especially in the Highlands of Scotland, and in many parts of continental Europe. It does not attain a great size, has in general a very straight erect stem, and is distinguished from other species of *Pyrus* (q.v.) by pinnated glabrous leaves, terminated by a single leaflet, serrated leaflets, corymbs of small flowers, and small globose fruit. The wood is valued for its compactness. The inner bark and sapwood have a very peculiar smell. In the superstitions of the Scottish Highlands, and also of the Lowlands, a peculiar importance was assigned to the rowan tree, a mere twig of which was supposed to have great efficacy in scaring away evil spirits. It is very ornamental, especially when in fruit. The fruit (*Rowan berries*) is sometimes used for preserves: it has much acidity, and a peculiar bitterness. It is generally red; but there is a variety with yellow fruit; and a very nearly allied species, *P. Americana*, native of North America, has purple fruit.

ROWDY, ROWDYISH, etc.: see under Row 3.

ROWE, *rō*, NICHOLAS: 1674, June 30—1718, Dec. 6; b. at Little Barford, Bedfordshire: dramatic poet and translator, contemporary and friend of Congreve, Addison, Steele, and the other wits of the Queen Anne period. He was educated at Westminster, and studied law in the Middle Temple; but inheriting a small competency by the death of his father, he engaged in literature. 1700–14, he produced eight plays, of which three were long popular—*Tamerlane*, 1702; *The Fair Penitent*, 1703; and *Jane Shore*, 1714. The character of Lothario in the *Fair Penitent* was the prototype of Lovelace in Richardson's *Clarissa Harlowe*, and the name is still the synonym for an accomplished rake. R. translated Lucan's *Pharsalia*, and his translation was so highly valued, that after his death his widow received a pension expressly for this service to literature by her husband. He was also the first editor of Shakespeare, 1709. The popular talents and engaging manners of R. procured him many friends. The Duke of Queensberry made him his undersec. of state. In 1715, he succeeded Tate as poet-laureate; and the same year was appointed one of the land-surveyors of the customs of the port of London; the Prince of Wales made him clerk of his council; and the Lord Chancellor Parker created him clerk of the presentations. He was buried in Westminster Abbey. As a dramatist, R. is characterized by easy and elegant diction and versification, but has no originality, subtlety, or force in delineation of character or passion. In the construction of his dramas, 'there is not,' as Johnson remarks, 'much art;' but there is no gross violation of taste or decorum, and he excels in scenes of domestic tenderness.

ROWEL—ROWING.

ROWEL, n. *row'el* [F. *rouelle*—dim. of *roue*, a wheel, any small hoop or ring movable in the place which holds it: mid. L. *rotella*, a little wheel—from L. *rota*, a wheel: Venetian, *rodela*, the rowel of a spur]: the little star-like wheel of a spur; a little ring or wheel on a horse's bit; in *surg.*, a roll of hair, silk, or lint put into a wound to keep it open: V. to insert a little ring or wheel in. **ROW'ELLING**, imp. **ROW'ELLED**, pp. -*ēld*.

ROWEN, n. *row'en* [said to be a corruption of *rough-ings*]: the aftermath; a field left untilld till after Michaelmas, that the grain left on the ground may sprout and produce green herbage for cattle or sheep: the grass on it.

ROWING, in the United States (see **BOATING**): popular aquatic sport and pastime, promoted in the United States (amateur) by the National Assoc. of Amateur Oarsmen; Middle States Amateur Assoc.; numerous state and river assoc.; intercollegiate R. assoc.; inter-university contests; contests (open to universities and colleges) for the George W. Childs's cup; and a large number of R. clubs; and (professional) by individual oarsmen of international fame. International university R. contests occurred 1869, Aug. 17, at London, when Oxford beat Harvard; 1876, Sep. 1, at Philadelphia, when the Trinity College (Eng.) four was entered but withdrew, and Yale beat Columbia; and 1878, at London, when a Columbia four won the visitors' challenge cup at the Henley regatta. Eights from Harvard and Yale have rowed 1852, 55, 59, 60, 64, 65, 66, 67, 68, 69, 70, and annually since 1876, the race (4 m. straight) 1890, June 27, resulting in a victory for Yale in 21 min., 29 sec., against Harvard's 21, 40. Eights from Columbia and Harvard rowed annually 1881-87, and Harvard won the last race in 20, 24 against Columbia's 20, 29. Freshmen crews from several universities and colleges rowed a number of 6-oared races prior to 1880, and in that year Harvard and Columbia agreed to have annual 8-oared freshmen races at 2 m. straight. Yale entered the agreement 1886 and met with an accident during the race of that year, and Yale and Cornell (Harvard out) rowed 1890, June 24, when Cornell won in 11, 16½ against Yale's 11, 25 and Columbia, 11, 29. Races for the Childs's cup (univ. or college fours, without coxswain, 1½ m. straight, on Schuylkill river) were rowed 1879, 80, 81, 82, 83, 84, 85, 86, 87, and 89, and in the last, when crew were changed from fours to eights, Cornell won by a few ft. in 6 min., 20 sec. against the Univ. of Penn. The intercollegiate R. assoc. has rowed annually excepting 1888 since 1883, fours without coxswain, 1½ m. straight, changed to eights and 3 m. 1889. Cornell defeated the Univ. of Penn., 1890, June 26, at New London, 3 m., by 6 lengths in 14 min., 43 sec., which broke the record. In the Harvard-Yale contests at New London (4 m. course) 1880-91, Yale won 8

ROWING.

times (best 20 min., 10 sec.), and Harvard 3 times (best 20 min., 47½ sec.).

Among R. club and professional achievements, the following are among the best records: *Single sculls*: 1 m., Ellis Ward, Savannah river, 1872, Apr. 1, 5 min. 1 sec.; 2 m., J. Tyler, Hudson river, 1868, June 24, 11 min., 20 sec.; 3 m., Edward Hanlan, Lake Quinsigamond, 1886, Aug. 14, 19 min., 23 sec.; 4 m., Edward Hanlan, Ogdensburg, 1883, July 28, 27 min., 57½ sec.; 5 m. Edward Hanlan, Chautauqua Lake, 1879, Oct. 16, 33 min., 56¼ sec., G. H. Keenan, Passaic river, 1890, May 30, 9 min., 26 sec.; and S. C. Hawkins, same place and time, 9 min., 18¾ sec. *Pair-oared sculls*: 2 m., J. A. Riley, Greenwood Lake, 1876, Oct. 9, 12 min. 20¾ sec., and D. G. Bartlett, G. Gibbs, and J. Gleecker, Passaic river, 1890, May 30, 10 min., 10 sec.; 3 m., J. Faulkner and P. Regan, Philadelphia, 1876, Sep. 5, 20 min., 28 sec.; 5 m., John and Barney Biglin, Philadelphia, 1872, May 20, 32 min., 1 sec. *Double sculls*: 1 m., J. Smith and J. C. Hayes, Harlem river, 1885, Sep. 9, 5 min., 55¼ sec.; 2 m., F. E. Yates and C. E. Courtney, Saratoga Lake, 1876, Aug. 8, 12 min., 16 sec.; 3 m., P. H. Conley and C. E. Courtney, near Albany, 1885, Aug. 20, 17 min., 57¼ sec., J. C. Grifflch and C. Donogan, Passaic river, 1890, May 30, 8 min., 36¾ sec., and George Freeth and J. Platt, same place and time, 8 min., 41½ sec. *Four-oared shells*: 1 m., Argonauta R. Assoc., Kill von Keell, 1883, Sep. 1, 4 min., 51 sec.; 2 m., Minn. Boat Club, Mississippi river, 1884, Aug. 12, 12 min., 30 sec.; 3 m., Argonauta R. Assoc., Kill von Keell, 1875, Sep. 8, 15 min., 37½ sec.; 4 m., Joshua, Ellis, Gilbert, and Hank Ward, Saratoga Lake, 1871, Sep. 11, 24 min., 40 sec.; 5 m., John James, and Barney Biglin, and Dennis Leary, Harlem river, 1860, Sep. 10, 30 min., 44¾ sec.; 6 m., E. Ross, L. Hutton, J. Price, and R. Fulton, St. John, N. B., 1871, Aug. 23, 39 min., 20¾ sec. *Six-oared shells*: 3 m., Amherst College crew, Springfield, Mass., 1872, July 24, 16 min., 32¼ sec. *Eight-oared shells*: 1 m., Bradford Boat Club, sr., Passaic river, 1890, May 30, 7 min., 33 sec., and Columbia College Boat Club, Harlem river, 1883, June 1, 5 min., 4¾ sec.; 2 m., Columbia College freshmen, New London, 1884, June 26, 9 min., 43½ sec.; 3 m., Yale Univ. crew, New London, 1888, June 29, 15 min., 25 sec.; 4 m., Yale Univ. crew, same place and day, 20 min., 10 sec.

The great annual R. event in England is the race between the crews of Oxford and Cambridge universities. These contests were begun at Henley (course 2¼ m.) 1829, and since 1856 have been rowed annually, sometimes on the Westminster-Putney course (about 5 m.), occasionally on the Mortlake-Putney course (1,200 yards longer than the Putney-Mortlake), and since 1864 on the latter course (about 4 m.). 1890, Mar. 20, the race was won by Oxford by 1 length in 22 min., 3 sec. The quickest time made on this course was 1873, Mar. 29, when both crews used sliding seats for the first

ROXBURGH—ROXBURGHIAEÆ.

time, and Cambridge won by $3\frac{1}{4}$ lengths in 19 min., 53 sec. In 1864–90, Oxford won 14 times and Cambridge 12, and 1877 both crews made a dead heat. See **BOATING**.

ROXBURGH, *röks'bŭr-rŭh*: county in Scotland, comprising the districts Teviotdale and Liddesdale, with part of Tweeddale; length about 40 m., breadth 28 to 30 m.; bounded e. and s. by Northumberland and Cumberland; s.w. by Dumfriesshire; w. by Selkirk; n. by Berwickshire; 670 sq. m., or 428,494 acres. The physical aspect of the county is varied and picturesque, having the Cheviot (highest point 2,382 ft.) and Larriston hills bounding a considerable portion of its borders. The interior has generally a good soil; and many of the farms are large and managed with great skill. Hawick is noted for hosiery and woolen manufactures. The chief river is the Tweed, which flows through the n. districts of the county. The Teviot flows through the county 40 m. and falls into the Tweed at Kelso. There are several other streams of note, the Allan, the Slitrig, etc. R. has an interesting history in connection with border feuds of former days; and it has many magnificent remains of monastic life and institutions, with numerous legends and traditional stories. The proprietors are not numerous—the Dukes of Roxburghe and Buccleuch, the Marquis of Lothian, the Earl of Minto, and a few others holding a great proportion of it. To the eye of a traveller, R. is the county of Perth in miniature. In 1881 the total acreage under all kinds of crops, bare fallow, and grass, was 181,608. The county town is Jedburgh. Pop. (1861) 54,119; (1871) 49,407; (1881) 53,446; (1891) 53,726; (1901) 48,804.

ROX'BURGHE CLUB: literary society in Scotland, named from John, Duke of Roxburghe, collector of ancient literature. It originated in the interest caused by the sale of the duke's library at his death 1812, when the prices realized for some books were unprecedented; e.g., a copy of the first work printed by Caxton 1471, *Recuyell of the Historyes of Troye*, sold for £1,050, 10s. (\$5,110.75); and a volume of the first ed. of Boccaccio's *Decameron* was bought by the Marquis of Blandford (afterward Duke of Marlborough) for £2,260 (\$10,994.90), the greatest price till then ever paid for a single printed volume. The R. C. has printed, for its members only, many impressions of MSS., and many rare works—numbering about 80 in all. It may be regarded as the parent of many similar literary societies.

ROXBURGHIAEÆ, *röks-bér-ĭ-ă'sē-ē*: natural order of plants, belonging to the Dictyogens (q.v.) of Lindley, twining shrubs with reticulated leathery leaves and large, showy, solitary, fetid flowers; the perianth of four divisions, the stamens four, hypogynous, the ovary one-celled, the ovules numerous; the pericarp one-celled, 2-valved, with two clusters of seeds at the base; the seeds attached to long cords. The species are very few, natives of hotter parts of the E. Indies. The stems of

ROXBURGH-STYLE—ROY.

Roxburghia viridiflora, native of Chittagong, the Malay-an Islands, etc., are sometimes 100 fathoms long. The roots are boiled and soaked in lime-water, to remove their acridity, and are then preserved in syrup, and eaten.

ROXBURGH-STYLE, n. *röks'būr-rūh-stīl* [after John Ker, third Duke of Roxburghe, a noted bibliophile, because first employed in his library]: style of bookbinding consisting of a plain leather (generally morocco) back, with the lettering in gold high up, plain cloth or marbled paper sides, the top of the book gilt-edged, but the front edge and bottom of the book left white, and trimmed, not cut.

ROXBURY, *röks'bér-ī*: formerly a city in Suffolk co., Mass.; since 1867 constituting the 13th, 14th, and 15th wards of Boston; locally known as Boston Heights. It was settled 1630; was the birthplace of Gens. Warren and Heath of the revolutionary army; was the home of John Eliot, Thomas and Joseph Dudley, and Robert Williams; established a free school 1642; was occupied by the American army prior to Washington's investment of Boston; was chartered as a city 1846; was a terminus of the first street railroad (horse) in New England 1855; had a portion of its territory set off as W. Roxbury 1851, and the remainder was annexed to Boston 1867. In its present status as part of Boston, it is connected with the heart of the city by numerous street railroads; has more than 20 churches, several banks, a Rom. Cath. nunnery, and a number of institutions for reformation of wayward children and for Rom. Cath. orphans. It is lighted with gas and electricity; and has important industries, including brewing, milling, tanning, foundrying, watch-making, beef-packing, rubber-making, and the manufacture of organs and locomotives. Pop. (1846) 17,000: (1870) 34,772; (1890) 66,791; (1900) 63,988.

ROY, WILLIAM: major-general in the Brit. army: 1726, May 4—1790, July 1; b. Milton Head, the parish of Carluke, Lanarkshire, Scotland. He was the first of British geodesists. At the age of 20 he began the survey of the mainland of Scotland. In 1756 he was made lieut. in the army. R.'s most notable operation was measuring a base-line (see **ORDNANCE SURVEY**) on Hounslow Heath, of $27,404\frac{3}{4}$ ft., or about $5\frac{1}{5}$ m., which, though the first measurement of the kind in Britain which pretended to accuracy, was executed with such care, that, on remeasurement after R.'s death, the difference between the two results was found to be only $2\frac{3}{4}$ inches. For this splendid labor, R. received the Royal Society's Copley medal. His elaborate work on the camps and other Roman remains in Scotland, illustrated by drawings, was pub. (1793) by the Soc. of Antiquaries. R. was surveyor-gen. of the coasts of Great Britain. His abilities as a milit. draughtsman procured him high promotion.

ROYAL—ROYAL FAMILY.

ROYAL, a. *roy'al* [F. *royal*; OF. *real*, *roial*, royal or regal—from L. *rēgālis*, kingly—from *rex* or *rēgem*, a king]: becoming or like a king; pertaining to a king; kingly; majestic; illustrious; specially patronized by the sovereign, or in his service: N. a large kind of paper; in a *ship*, a small sail spread immediately above the top-gallant sail (see **ROYAL-MAST**); one of the shoots of a stag's head; a gold coin at one time current in England (see **RIAL** 2); in *artillery*, a small mortar. **ROY'ALLY**, ad. *-lī*, as becomes a king; regally. **ROY'ALS**, n. *-alz*, name given to the first regt. of foot in the British army, now called the Royal Scots; supposed to be the oldest regular troops in Europe. **ROY'ALTY**, n. *-tī*, the character, status, or office of a king; the person of a king or one of royal rank; share or portion due to a king or to a superior, or to an inventor for the use of his patent, or to a landowner for the privilege of working mines on his estate. **ROYALTIES**, n. plu. *roy'al-tīz*, emblems of royalty; rights of a king. **ROYALIZE**, v. *roy'al-īz*, in *OE.*, to make royal. **ROY'ALIZING**, imp. **ROY'ALIZED**, pp. *-īzd*. **ROY'ALIST**, n. *-īst*, an adherent of the king; one attached to a kingly government. **ROY'ALISM**, n. *-īzm*, attachment to the principles or cause of royalty. **ROYAL ACADEMY**, in England, corporate body of 40 members founded 1768 for promotion of the fine arts: the public school of art, where the annual exhibitions of paintings by living artists are held. **ROYAL ACADEMICIAN**, a member of the Royal Acad. **ROYAL ANTLER**, the third branch of the horn of a deer. **ROYAL ARCH**, a degree in freemasonry. **ROYAL ASSENT** (see **PARLIAMENT**). **ROYAL FERN**, a large and handsome British species, the *Osmun'da rēgālis*. **ROYAL OAK**, an oak in Boscobel Wood in which Charles II. is said to have found concealment after the battle of Worcester. **ROYAL SOCIETY**, the oldest scientific society in London, incorporated by royal charter in 1662. **ROYAL-YARD**, the fourth yard from the deck, on which the royal is set (see **ROYAL-MAST**).—**SYN.** of 'royal': kingly; regal; princely; majestic; superb; imperial; monarchical; kinglike; august; splendid; noble; illustrious.

ROYAL FAMILY OF GREAT BRITAIN: in its more restricted signification, including only the queen-consort and queen-dowager, and the children or other descendants of the sovereign: in a larger sense, comprehending all the British descendants of the royal house; or more properly, as indicated by Blackstone, all who may by possibility succeed to the throne. With regard to the position and rights of a queen-consort and queen-dowager, see **QUEEN**. The husband of the queen-regnant is not as such a member of the royal family; but the style of Royal Highness, and a precedence next to the queen, were conferred on the late prince-consort by statute. The Prince of Wales (q.v.), or heir-apparent to the throne, and the Princess of Wales, are distinguished by law from the rest of the royal family. By

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statute 25 Edw. III., to compass the death of the Prince of Wales, or violate the chastity of the Princess of Wales, is high treason. The eldest daughter of the sovereign is styled the Princess Royal. The heir-presumptive to the throne has no special rank or precedence as such, as his position may be altered by the birth of an heir-apparent.

The younger sons and daughters of the sovereign are, as 'the king's children,' entitled to a peculiar place in the house of lords; and it has been held that, under the description of the king's children, grandsons are included.

The education and care of the king's grandchildren, when minors, also the approval of their marriages, belong to the king, even during their father's lifetime: it is likewise with the heir-presumptive. There are frequent instances of the crown's interposition in the case also of nephews and nieces, and a few in the case of more distant collaterals. Questions regarding the marriages of the royal family are now further regulated by the Royal Marriage Act (q.v.). The Prince of Wales, besides an income from the revenues of the duchy of Cornwall, has settled on him, by civil list 1901, an annuity of £20,000, and the Princess of Wales £10,000, to be increased to £30,000 in case of her widowhood. The king's three daughters have an annuity of £6,000; the Queen, in case of her widowhood, of £70,000.

On the consolidated funds are charged £25,000 to the Duke of Connaught, £8,000 to the Crown-Princess of Prussia, £6,000 to the Princess Helena of Waldeck, the Duchess of Albany, £6,000 to Princess Christian of Schleswig-Holstein, £6,000 to Princess Louise, Duchess of Argyll, £6,000 to Princess Henry (Beatrice) of Battenberg, £3,000 to the Grand-Duchess of Mecklenburg-Strelitz, £12,000 to George, Duke of Cambridge.

ROYAL GEORGE: British man-of-war, of 108 guns, which sank suddenly, 1782, Aug. 29, in Portsmouth Harbor, England, with all on board. While undergoing repairs near the keel, she was too much heeled over, so that the water, rushing through the port-holes of the depressed side, speedily filled her, and she sank with all on board, including the admiral Kempenfeldt, the capt., officers, crew, and about 300 women and children, who happened to be on board at the time—1,100 in all: of these, however, 200 were saved. A small vessel, anchored near, was drawn into the vortex of the R. G.'s descent, and swallowed up (see the elegy by Cowper). After unsuccessful attempts to raise the ship, the mass was blown to pieces by explosion of large metal cases filled with gunpowder, 1839. Most of the valuables which had gone down in the ship were brought up, and the brass guns recovered defrayed the cost of the operation.

ROYALL—ROYAL SOCIETY.

ROYALL, *roy'äl*, ISAAC: soldier: about 1720–81; b. Mass. For a long time he resided in Medford, which town he repeatedly represented in the legislature. He was a member of the executive council more than 20 years, and was the first native of New England to be appointed brig.gen., which title he received 1761 in the old French war. Though he was proscribed for his sympathy with England in the revolution, and his large estate was confiscated, he left funds to endow a law professorship in Harvard College. Royalston, Mass., was named in his honor. He died in England.

ROYAL MARRIAGE ACT, in Great Britain: Act 12 Geo. III. c. 2, enacting that no descendant of the body of George II., other than the issue of princesses married into foreign families, shall be capable of contracting marriage without previous consent of the sovereign, signified under the great seal; and any marriage contracted without such consent is declared void. But such descendants, if above the age of 25, may, after 12 months' notice to the privy council, contract marriage without consent of the crown, unless both houses of parliament shall, before expiration of the year, expressly declare their disapproval of such intended marriage. The Royal Marriage Act is heartily disapproved by many as impolitic and despotic, and as tending to immorality and scandalous conduct, and was not passed without great resistance in parliament.

ROYAL-MAST, in Shipping: fourth mast from the deck, and usually the highest carried. It is usually made in one piece with the top-gallant mast. It carries the royal-yard, which bears a sail called the 'royal.' The royal-mast is surmounted by the truck, at which the pendant or other flag is displayed when necessary.

ROYAL SOCIETY (OF EDINBURGH): society for investigation in every branch of science, erudition, and taste; incorporated by charter 1783. It owed its origin to Principal Robertson, the historian, who took as its model the Berlin Acad. The meetings are on the 1st and 3d Mondays of every month, Dec. to July. The papers read before this learned body are published in its *Transactions*, thus far more than 30 vols. quarto. Abstracts of the papers appear in its *Proceedings*.

ROYAL SOCIETY (OF LONDON): society for promotion of science, whose origin may be traced back to the years of civil strife that brought in the Commonwealth. In 1645 'divers worthy persons' met weekly in London to discuss 'natural philosophy and other parts of human learning.' Among these were some medical men; Dr. Wilkins, afterward bp. of Chester; Foster, prof. of astronomy in Gresham College; Wallis the mathematician, and others; and out of their meetings arose the now famous Royal Soc. Wallis records that the subjects discoursed of were 'the circulation of the blood; the valves in the veins; the venæ lacteæ; the lymphatic

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vessels; the Copernican hypothesis; the nature of comets and new stars; the satellites of Jupiter; the oval shape of Saturn; the spots in the sun, and its turning on its own axis; the inequalities and selenography of the moon; the several phases of Venus and Mercury; the improvement of telescopes, and grinding of glasses for that purpose; the weight of air; the possibility or impossibility of vacuities, and nature's abhorrence thereof; the Torricellian experiment in quicksilver; the descent of heavy bodies, and the degrees of acceleration therein; and divers other things of like nature.'

In 1662 the philosophers were incorporated by charter from King Charles II., who subsequently granted two other charters conferring additional privileges. They are inscribed in the Charter Book, which, containing, as it does, the sign-manual of royal personages, and of nearly every fellow elected into the soc., presents a collection of autographs unequalled in the world. In 1664-5, March, they published the first number of *Philosophical Transactions*; and thus began a record of their labors and researches, and a history of science, of the highest value, comprising more than 170 quarto vols. Besides, the soc. publish an octavo serial, *Proceedings*, giving account of the ordinary meetings, beginning with 1800, and filling more than 30 vols. Another publication, in about ten quarto vols., is *Catalogue of Scientific Papers*, containing the titles of scientific papers published in all parts of the world since 1800—invaluable for reference. These works are sold to the public.

By increase of numbers—including scientific men on the continent, elected as foreign members—the soc. widened their sphere of usefulness. They promoted the publication of Newton's *Principia* and optical works; they lent instruments to Greenwich Observatory in its early days, and were appointed visitors of that establishment by Queen Anne—a function which they still exercise; they aided travellers and scientific investigators; through force of circumstances, they became the advisers of the govt. on scientific subjects; Cook's celebrated voyage to observe the transit of Venus was undertaken at their instance; and most of the great British scientific expeditions have been equipped under their advice. Since 1857 they have been domiciled in Burlington House. Their session commences on the 3d Thursday in Nov., and ends on the 3d Thursday in June. During this period, meetings are held weekly at 4:30 P.M. for reading and discussion of papers. At the anniversary meeting, Nov. 30, the soc. elect a council of 21 persons, including the officers, to carry on their work through the ensuing year. There are about 550 fellows, including 50 foreign members. There is a library of 30,000 vols. In fulfilment of trusts, the soc. award annually, in recognition of scientific work and discoveries, the Copley medal and two royal medals; the Rumford medal every two years for researches in light or heat; and the Davy medal for chemical investigations.

ROYER-COLLARD.

ROYER-COLLARD, *rwâ-yâ'ko-lâr'*, **PIERRE PAUL**: French statesman: 1763, June 21—1845, Sep. 2; b. at Sompuis (Marne). He was sent to college at Chaumont, and afterward at Saint-Omer, and passed as advocate at an early age. From the first days of the Revolution he was involved in the events of that time, having been elected one of the representatives of the Commune of Paris. 1790–92 he acted as joint-sec. of the municipality, when he was connected with Pétion and Danton. Finding it necessary at length to remove from Paris, he lived in obscurity in Sompuis during the whole time of the Reign of Terror. In 1797 the electors of his dept. chose him to represent them in the Council of the Five Hundred. R.-C. was one of those honest men who, preferring monarchy, but fearing a violent counter-revolution, consented to try the republic with a moderate government, hoping, meantime, for an ultimate restoration. The 18th Fructidor completely dispelled his illusions. Then turning to what he believed to be the only hope of France, he began a correspondence with Louis XVIII., which, however, ceased toward the epoch of the establishment of the Empire. For some years he refrained from politics. He accepted after much hesitation the chair of philosophy (1809) offered by Napoleon, in the new Univ. of France, and in this chair he exercised great influence on the philosophy of France. Rejecting the purely sensuous system of Condillac, he proceeded eclectically, giving special prominence to the principles of the Scottish school of Reid and Stewart. He originated the 'Doctrinaire' school, of which Jouffroy and Cousin were chief representatives.

At the restoration, the Bourbons did not overlook the man who had maintained their cause; but R.-C., who had all along dreamed of the union of hereditary monarchy with enlightened liberty, was ill fitted to act with the royalist fanatics who then became dominant in France.

R.-C. was appointed pres. of the Commission of Public Instruction 1815, which office he held, with the title Councilor of State, till 1820, when he resigned, not wishing to associate himself with the politics of the ministry. In 1815 the electors of Marne chose him to represent them in the famous 'Chambre Introuvable' (q.v.). He remained steadfastly attached to the king, but energetically opposing the *ultra* party. In the next parliament, he rejected, with energy, the idea of confiding public instruction to the clergy. Though R.-C. once more supported the govt. in a new discussion against the predominance of the Rom. Cath. Church, yet from 1819 his rupture with it was complete. He presented then the singular spectacle of a devoted royalist seconding the efforts of the liberals. In 1828 he became pres. of the chamber of representatives, and had to present the famous address of the 221 deputies (1830, Mar.), refusing their support to the govt., which the king refused to hear read. R.-C. was re-elected 1830, June; and in 1842 he withdrew from parliamentary life, and afterward lived

ROYNE—RUB.

in retirement until his death at his estate of Château-vieux.

Although R.-C. had a considerable fortune, he never departed from the greatest simplicity in living. He received with politeness, but with a certain coldness which he could never lay aside. His salon was frequented by the political world. Every Sunday, the principal leaders of the moderate opposition assembled there—Cousin, Guizot, the Duke de Broglie, Casimir Périer, De Barante, Villemain, Ampère, Andral, De Rémusat, De Barthélemy, Gabriel, and many others. R.-C. exercised on his contemporaries a powerful influence, more by his uprightness, firmness, and extreme earnestness, than by genius or original intellectual power. His chief work in philosophy was to import into France the philosophy of the Scotch school. See the biographies by Philippe (1857), and Barante (new ed. 1878).

ROYNE, v. *royn* [F. *rogner*, to pare]: in *OE.*, to gnaw.

ROYNISH, a. *royn'ish* [F. *rogneux*, scabby, mangy; *rogne*, itch—from L. *robigo* or *robiginem*, rust]: in *OE.*, mangy; scabby; mean; paltry; rude; base.

ROYSTERING, ROYSTERER: another spelling of ROISTER, which see.

RSHEW, or RJEV, *rzhev*: town of European Russia, in the govt. of Tver, and 80 m. s.w. from Tver, on the Volga, which passes through it. It is a place of much commerce; has salt and corn magazines, and two great annual fairs. Pop. (1880) 18,732; (1885) 35,810.

RUATAN, *rô-â-tân'*, or RATTAN, *rât-tân'*: island in the Bay of Honduras, Caribbean Sea; lat. 16° 30' n., long. 86° 30' w.; 30 m. long by 9 broad in its widest part. Its dependencies are Bonacca, Utila, Helena, Barbarette, and Morat: the whole comprise the colony of the Bay Islands; and were formerly part of the Brit. dominions, but were surrendered 1860 to the republican govt. of Honduras. The island has a fine climate, with prolific soil. Pop. (principally emigrants from the Caymans) estimated about 2,000 of whom about 200 are whites, including nearly 100 Spaniards.

RUB, v. *rüb* [W. *rhubio*; Gael. *rub*, to rub: Icel. *rubba*, to move a thing from its place, to rub: Sw. *rubba*, to disorder: Dan. *rubbe*, to rub or scrub]: to move one body along the surface of another with pressure; to clean; to scour; to remove by friction; to fret; to chafe: N. act of rubbing; friction; hindrance; difficulty; pinch; sarcasm; in *OE.*, inequality of ground that hinders the motion of a bowl. RUB'ING, imp.: N. act of scouring or polishing. RUBBED, pp. *rübd.* RUBBER, n. *rüb'bér*, he who or that which rubs; difficulty; hardship; collision; a polishing substance of various kinds; a coarse file, or a whetstone; two games out of three in whist; a contest, consisting of three games; the game deciding the contest; the cushion of an electrical machine; India-rubber. RUBSTONE, a kind of sandstone used for

RUBACE—RUBBLE.

scouring. To RUB DOWN, to clean by rubbing, as a horse. To RUB OFF, to clean anything by rubbing. To RUB ON, to live with some difficulty. To RUB OUT, to erase; to obliterate. To RUB UP, to polish; to clean; to refresh, as knowledge.

RUBACE, n. *rô'bās*, or RUBASSE, n. *rô'bās* [F.—from L. *ruber*, red]: name given by French jewellers and lapidaries to a variety of rock-crystal with rose-colored cracks; cut and polished quartz slightly tinged with violet, and besprinkled internally with minute brown spangles of specular iron. An artificial R. is made by heating very pure rock-crystal red-hot, and repeatedly plunging it into a colored liquid.

RUBATO, *rô-bâ'îō*, TEMPO [It., stolen time]: in music, capricious style of performance in which some notes are prolonged beyond their legitimate time, while others are curtailed, the aggregate value of the bar remaining unaltered. It is a style apt to be abused by inferior players and singers.

RUB'BER, INDIAN: see CAOUTCHOUC.

RUBBISH, n. *rŭb'bĭsh* [F. *rabâcher*, to repeat continually: Low Ger. *rabakken*, to rattle—the idea being a rattling, crashing, or falling down—same origin as *rubble*]: the mixed materials of ruined or crumbling buildings; waste fragments; any mingled mass; anything valueless; nonsense; confusion. RUB'BISHY, a. -*ĭ*, abounding in or having the nature of rubbish. Note.—In his remarks on the etymology of *rubbish*, Skeat compares It. *robaccia*, old goods, filth, rubbish; *robiccia*, trifles, trash—both being derived from O. It. *robba*, a gown, mantle, trash, pelf: see ROBE.

RUBBLE; n. *rŭb'bl* [Dut. *rabbelen*; Ger. *rappeln*, to rattle (see RUBBISH)]: name given by quarrymen to the upper fragmentary matter of rocks. In *masonry*, R. is a coarse kind of work, in which the stones are irregular in size and shape. Walls faced with ashlar are generally packed with R. at the back. R. is of various kinds, according to the amount of dressing given to the stones, and in some forms and situations is quite effective and picturesque. Common R. is built with stones left almost as they come from the quarry. Hammer-dressed R. is so called when the stones are squared with the mason's hammer; coursed R. when the stones are squared and equal in height, etc. RUB'BLY, a. -*blĭ*, resembling or abounding in rubble. RUBBLE-WORK, walls built of rubble-stones.

RUBEFACIENT—RUBENS.

RUBEFACIENT, n. *ró'bě-fā'shĭ-ěnt* [L. *ruber*, red; *faciō*, I make]: that which produces redness and heat, when applied to the skin, without blistering: **ADJ.** making red.—A *Rubefacient* is an external agent employed in medicine for stimulating, and consequently reddening, the part to which it is applied. All agents which, after a certain period, act as blisters, may be made to act as rubefacients, if their time of action is shortened. The mildest are hot poultices, cloths soaked in very hot water, moderately stimulating liniments—e.g., soap-liniment, with various proportions of liniment of ammonia, or chloroform, etc. Spanish fly in the form of *Emplastrum Calificiens*, or warm plaster, in which the active ingredient is blunted by free admixture of soap-plaster, resin-plaster, etc., is a good form of this class of agents. Capsicum or Cayenne pepper, in the form of a poultice, is a good R., much used in the W. Indies. Mustard in the form of *Cataplasma Sinapis*, or mustard poultice, and oil of turpentine, are perhaps the best of the ordinary rubefacients. The former is applied to the soles of the feet and the calves of the legs in the low stage of typhus fever, in apoplexy and coma, in narcotic poisoning, etc.: it is applied also to the chest, with much advantage, in many cases of pulmonary and cardiac disease, and to the surface of the abdomen in various affections of the abdominal viscera. The best method of employing turpentine is to sprinkle it freely on three or four folds of clean flannel, wrung out of boiling water: the sprinkled surface of this pad is placed on the skin, and a warm dry towel is laid over the flannel. Two or three such applications will produce a powerful R. effect. Turpentine thus applied is serviceable in all the cases mentioned in the remarks on Mustard, as well as in sore throat, chronic rheumatism, neuralgia, etc.

RUBEL, n. *ró'bl*: see **ROUBLE**.

RUBELLITE, n. *ró'běl-ĭ* [L. *rubellus*, *ruber*, reddish; Gr. *lithos*, a stone]: red tourmaline, containing a considerable proportion of manganese, generally occurring in closely aggregated crystals, varying from a slight tinge of red to a fine pink.

RUBENS, *ró'bénz*, **PETER PAUL**: most eminent of Flemish painters, and one of the great painters of the world: 1577, June 29—1640, May 30; b. prob. at Siegen, in Westphalia; son of John R., a druggist. His parents had fled from Antwerp (where John R. was an alderman) in fear of death during the persecution by the Duke of Alva—for they had become upholders of the Reformation. They settled in Cologne 1568, Oct.; but for reasons discreditable to the father, he was in compulsory residence two years at Siegen. In 1587 R.'s father died, and his mother removed with her family to Antwerp. Already R. was a good Latin scholar; and he soon added a knowledge of English, French, German, Dutch, and Italian. He was placed first under Verhaagt, a landscape-painter; how-

RUBENS.

ever, inclining more to historical painting, he became a pupil of Van Noort, but soon quitted his school for that of Otho Van Veen, or Voënius, who then had very high reputation; and after studying four years with that esteemed painter, went to Italy 1600. Recommended to Vincenzo Gonzaga, Duke of Mantua, he was given a place in the duke's household, and was sent on a mission to Philip III. of Spain; and during a year at Madrid painted several portraits of Spanish noblemen. He also spent considerable time at Venice and Rome, making copies for the duke, and executing independent works, which added largely to his reputation. In 1608 R. returned to Antwerp on account of his mother's illness; but she died before he had reached her. His stay with the Duke of Mantua, who was princely in his encouragement of art, was an important element in the formation of his style. He intended to return to Mantua, but was induced to remain by the Archduke Albert, gov. of the Netherlands. In Antwerp, R. married Isabella Brant, 1609, Oct. In 1621 he visited Paris by invitation of Marie de' Medici; and 1625 completed the series of sketches for the pictures destined to adorn the palace of the Luxembourg. At this period he had gained a renown equalled by no painter then in Europe. R. was sent by the Infanta Isabella, widow of the Archduke Albert, on a diplomatic mission to Philip IV. of Spain, 1628; and in the following year, on a similar mission to Charles I. of England, by whom he was knighted 1630: also Cambridge Univ. gave him the degree A.M. R.'s success as a political diplomatist is worth noting, and seems to indicate an unusually large, solid, and practical nature. In 1630, having been four years a widower, he married Helena Fourment, a beautiful girl of 16 years. R., having been long the acknowledged head of the Flemish school of art, died leaving a very large estate.—By the expression of powerful and energetic action, and strongly marked character—by great breadth and brilliant coloring, R. successfully embodied the tendencies of the age in which he lived, to pleasures of sense, strong passion, and stirring action; and while admitting the coarseness, and almost grossness, of his subjects, especially where the nude figure is introduced, we are in a manner carried away by the spirit of joyousness and an animal vigor conspicuous in his works, and the truthful manner in which he viewed nature. His portraits rank with the highest efforts in that walk of art. He painted animals admirably; and his landscapes possess great brilliancy and natural effect. He was perhaps the greatest master in the mechanical part of the art. His style has had much influence on the English school.—Rubens believed that painters could do most justice to their art in pictures on a large scale. Such are his 24 paintings illustrating the life of Marie de' Medici, now in the Louvre; these, in the manner of his time, include many allegorical figures, such as the Fates; the Graces; the Greek gods and goddesses; and

personations of Justice, Fidelity, Plenty, etc. Of his work in religious art, the *Assumption of the Virgin* is a notable example; it still adorns the high altar of the Antwerp cathedral, for which it was designed, and represents the Virgin ascending in a flood of glory. The *Massacre of the Innocents*, in the Munich gallery, repulsive to many on account of its subject, is vigorously true to its revolting theme. His portraits include many of the royal personages of his time, and more than 20 of his beautiful second wife; who appears also in twice that number of compositions, such as the *Feast of Venus*, now in the Vienna gallery, and the *Judgment of Paris*, at Madrid. In the last-mentioned work, and the *Martyrdom of St. Peter* (now at Cologne) and the *Martyrdom of St. Thomas* (at Prague), his latest productions, he was still in the exercise of his best powers. The Flemish school, of which he was the master, restored to glowing life and nature, though with much absence of refinement, the frigid stiffness of the Italian school. 'His pure fancy subjects, as the *Garden of Love* (Madrid and Dresden) and the *Village Feast* (Louvre), have never been equalled.' To the more refined Van Dyck he led the way, and for a century shaped the Flemish school. Winckelmann, historian of art, says that 'Rubens is the glory of art, of his school, of his country, and of all coming centuries.' J. Smith's *Catalogue* describes more than 1,300 of his compositions. The Madrid gallery possesses a hundred, and many are found in the principal cities of Europe. The tercentenary of R.'s birth was celebrated at Antwerp 1877 with great enthusiasm. See Kett's *R.* (Lond. 1879).

RUBEOLA, n. *rô-bě'ô-la* [L. *ruber*, red]: term often used for measles, but now restricted to an eruptive disease which presents the characters of both measles and scarlet fever. **RUBELOID**, a. *rô'bě-loyd* [Gr. *eidos*, resemblance]: resembling the eruptive disease rubeola.—See **MEASLES**.

RUBESCENT, a. *rô-běs'sěnt* [L. *rubescens* or *rubescens*], becoming red; *rubescō*, I become red—from *ruber*, red]: becoming red; tending to a red color.

RÜBEZÄHL, n. *rü'bě-zâl* [Ger.]: Number Nip, a famous mountain-spirit of Germany, sometimes friendly, sometimes mischievous, corresponding to English *Puck*.

RUBIACEÆ, *rô-bě-â'sě-ē*: natural order of exogenous plants, in which, according to many botanists, the *Cinchonaceæ* are included as a sub-order; but which, as restricted by others (*Stellatæ* of Ray, *Galiaceæ* of Lindley), consists entirely of herbaceous plants, with whorled leaves, angular stems, and numerous very small flowers; calyx superior, with 4, 5, or 6 lobes, or almost lacking; corolla wheel-shaped or tubular, regular, inserted into the calyx, and with the same number of divisions as the calyx; stamens equal in number with the lobes of the corolla; two styles; fruit a dry pericarp with two cells, and one seed in each cell. There are 300-400 known

RUBIACIN—RUBIDIUM.

species, abounding chiefly in n. parts of the n. hemisphere, and on mountains in tropical regions. The most important plant of the order, as above restricted, is Madder (q.v.). To this order belong also Bed-straw (q.v.) and Woodruff (q.v.); also, if the family *Cinchonaceæ* be included, the Peruvian Bark tree; the showy Button-bush of our fields; the Georgia Bark, Coffee-tree, Cape Jasmine, Bouvardia, the common Bluets (*Houstonia*), etc.

RUBIACIN, n. *ró-bí'a-sín* [L. *ruber*, red]: an orange colored pigment obtained from madder, *Rubia tinctorum*.

RUBIAN, n. *ró-bí-an* [L. *ruber*, red]: a bitter principle of madder.

RUBICAN, a. *ró-bí-kan* [F. *rubican*—from L. *rubēre*, to grow red; *ruber*, red]: of a bay, sorrel, or black color, with a light-gray or white on the flanks, but the gray or white not predominant there.

RUBICELLE, n. *ró-bí-sěl* [F. *rubicelle*—from L. *ruber*, red]: a gem, a variety of ruby, of a yellow or orange red.

RUBICON, *ró-bí-kon* or *rū-bí-kon*: small stream of central Italy, falling into the Adriatic; with a proverbial celebrity from the well-known story of its passage by Julius Cæsar, who by crossing this river—which, at the outbreak of the civil war between him and Pompey, formed the s. boundary of his province—virtually declared war against the Republic. Hence the phrase, 'to cross the Rubicon,' has come to mean to take an irrevocable step, committing one's self to a difficult, momentous, and hazardous enterprise. The modern Luso, called by the peasants on its banks *Il Rubicone*, has claims to being the ancient R.; but arguments preponderate in favor of the *Flumicino*.

RUBICUND, a. *ró-bí-künd* [L. *rubicundus*, red—from *ruber*, red: It. *rubicondo*: F. *rubicond*]: inclining to redness; ruddy. **RUBICUNDLY**, ad. *-lī*. **RUBICUND'ITY**, n. *-ī-tī*, inclination to redness; ruddiness.

RUBIDIUM, n. *ró-bí-dí'ŭm* [L. *rubidus*, dark red—from *rubēō*, I am red; *ruber*, red]: elementary body, a metal analogous to potassium, with such intense affinity for oxygen that it burns spontaneously in contact with either air or water. **RUBIDIUM** (sym. Rb, at. wt. 85.4) and **CÆSIUM**, *sě-zī-ŭm* (sym. Cs, at. wt. 133), are two alkaline metals, discovered 1860-1, by Bunsen and Kirchhoff, by means of spectrum analysis. They resemble potassium more nearly than any other substance, and their names [from *rubidus*, dark red, and *cæsius*, sky-colored] are from two red lines of remarkably low refrangibility present in the spectrum of the former, and two characteristic blue lines in that of the latter. They are widely diffused in nature, but occur only in very small quantities. They have been detected in many mineral waters, and in certain minerals; e.g., lithia-mica, lepidolite, petolite, and felspar; and they have been found in the alkaline ashes of the beet-root. The best material

RUBIED—RUBINSTEIN.

for the preparation of rubidium is lepidolite, which will sometimes yield as much as 0·2 per cent. of the metal. For some time the principal source of cæsium was the brine of Dürkheim, in which both these metals were originally found; every ton of the water containing about three grains of chloride of cæsium, and rather less than four grains of chloride of rubidium. It is now ascertained that the mineral Pollux, found only on the island of Elba, contains no less than 34·01 per cent. of oxide of cæsium. Both metals are so analogous to potassium that they cannot be distinguished either from it or from one another by reagents, or before the blow-pipe. Like potassium, they form double salts with bichloride of platinum, which are much more insoluble than the corresponding potassium salt; and it is on this property that the separation of these metals from potassium is based. Rubidium is electro-positive toward potassium, and cæsium is electro-positive toward rubidium and potassium, being thus the most electro-positive of the known elements.

INDIUM is another metal, very rare, discovered by Reich and Richter in the Freiberg arsenical ores. Its most striking property, and that which led to its discovery, is the indigo-blue line which all its compounds (so far as investigated) show in the spectroscope. Its at. wt. is 113·4; its sp. gr. varies from 7·1 to 7·3; its color is between those of tin and silver; it is exceedingly soft and very ductile; its fusing-point is about that of lead.

RUBIED, RUBIFORM, RUBIOUS: see under RUBY.

RUBIGINOUS, a. *rô-bÿ'ĩ-nūs*, or RUBIG'INOSE, a. *-ĩ-nōs* [L. *rubigīnōsus*, abounding in rust—from *rubīgo* or *rubiginem*, rust, mildew]: in bot., of a brownish-red tint; red, with much gray; having the color of rust.

RUBINI, *rô-bē'nē*, GIOVANNI BATTISTA: singer: 1795–1854, Mar. 2; b. Italy. In his boyhood he showed no talent for singing, but after years of close study he made a successful appearance at Brescia 1815. Ten years later he appeared in Paris, and soon became the leading tenor singer of his day. He sang in the large cities of Europe 1831–46, retiring in the latter year with a large fortune. His voice was of remarkable compass and wonderful sweetness. As an actor he had very little ability.

RUBINSTEIN, *rô'bīn-stīn*, ANTON GREGOR: pianist and composer: b. Wechwotynetz, Roumania, 1829, Nov. 18. He received his preliminary musical education from his mother; made his first public appearance in piano concert when 8 years old; continued his studies in Moscow, Paris, and Berlin; and after teaching in Berlin and Vienna, settled in St. Petersburg 1848, and founded a conservatory of music 1850. He became pianist to the Grand-Duchess Helena and director of the concerts of the Russian musical Soc. After 1867 he spent his time trav-

RUBLE—RUBRUQUIS.

elling, playing, and composing. He visited the United States 1872-3; and resigned the directorship of the St. Petersburg conservatory of music 1890. He was ennobled 1869, awarded the French decoration of the Legion of Honor 1877, and was given a jubilee fête in St. Petersburg 1889. He published *Autobiography of Anton Rubinstein*. 1829-1889 (1890). He d. 1894, Nov. 20.

RUBLE, n. *rô'bl*: see ROUBLE.

RUBRIC, n. *rô'brîk* [F. *rubrique*, chalk, rubric—from L. *rubricā*, red chalk, the title of a law so named from being written in red—from *ruber*, red]: the directions printed in prayer-books, which were formerly in red letters; in *anc. canon-law books*, title or heading of a chapter, printed in red letters; the rule of law; the authoritative direction; an explanation or direction. RU'BRICS, n. plu. directions; in mediæval and modern use, restricted to directions in the service-books of the church, as to the ordering of the several prayers, and performance of the ceremonial. The same name, with the usage itself, is retained in the Church of England and in the Prot. Episc. prayer-books; the name being retained even where the direction is not printed in red ink, in which case the rubric is distinguished from the text by italics, or other variety of print. In the Rom. Cath. Church, a controversy exists as to whether the rubrics of the missal, the ritual, and the breviary are preceptive, or only directive. A similar controversy has arisen at various times in the English Church. The science of rubrics is with Rom. Catholics a special study, the chief authorities on which are Gavanti, Merati, Cavalieri, and more compendious writers. RU'BRICAL, a. *-brî-kal*, pertaining to a rubric. RU'BRICAIRE, n. *-kâr*, or RU'BRICIST, n. *-sîst*, one versed in ancient rubrics. RU'BRICATE, a. *-kât*, marked with red: V. to mark or distinguish with red. RU'BRICATING, imp. RU'BRICATED, pp.

RUBRUQUIS, *rû-brü-kēs'* (usual name for WILLIAM OF RUBRUK): distinguished mediæval traveller: b. in the first half of the 13th c., prob. in the village of Rubrouck, in what is now the French. dept. Nord (q.v.). He entered, while very young, into the Franciscan order, and being hindered in his favorite scheme of missionary labor in the Holy Land, and going instead to central Asia, he was made by Louis IX. of France bearer of proposals for an alliance with Sartak, son of Batû Khan of Kiptchak, a supposed Christian sovereign, against the infidels who held the Holy Land. Taking Constantinople as the starting-point, R., with two companions, also Franciscans, sailed for Soldaia—now Soujac—near Cherson, made his way across the steppes between the Dnieper and the Don, and crossing, the latter river, reached, 1253, Aug. 2, the camp of Sartak, who was now discovered not to be a Christian, and by whom they were sent forward to his father, Batû. When they reached the encampment of Batû, on the

RUBUS.

Volga, near its mouth, that prince refused to treat with them, and sent them forward to the Tartar emperor, Mangû Khan; whom they reached Dec. 27. At this rude court they remained several months, and accompanied it about Easter to Karakorum, where they found a few Europeans. Some time afterward, R., being charged with having spoken of the emperor as an infidel, though he defended himself courageously, was compelled to return, but was treated with a degree of rude consideration. Proceeding along the banks of the Volga, he penetrated the difficult defiles of the Caucasus, proceeded through Armenia, Persia, and Asia Minor, to Syria, arriving at Tripoli 1255, Aug., having spent two years and a half in his eastern travel. As King Louis, by whom the mission had been accredited, had meanwhile returned to France, R. requested permission to follow him, to report the result; but the Franciscan provincial refused to permit him to leave the East, and directed him to report in writing. To this fortunate severity we owe the interesting and curious account which he drew up, and of which a lucid summary is in Lardner's *Cyclopædia, Inland and Maritime Discovery*, I., 261, and following. Of the later history of R., the only fact known is, that he was living 1293, when Marco Polo was returning from the East. His narrative is among the most plain and sober in its tone of all that have come down to us from the adventurous voyagers of the 13 c. He was evidently honest and sagacious; and is generally accepted by scholars as trustworthy.

RUBUS, *rôbûs*: genus of plants of nat. order *Rosaceæ*, distinguished by a 5-lobed calyx without bracts, and the fruit formed by aggregation of small drupes adhering to each other on a long *torus*. The fruit is eatable in all, or almost all, the species, which are very numerous, and natives chiefly of the colder parts of the n. hemisphere, though some are natives of warm climates, and are seen occasionally in our hothouses. Some of them are herbs with perennial roots, some are shrubs with sub-ligneous—often only biennial—stems, and they have digitate, pinnate, or lobed leaves. They cause great difficulty to botanists, the varieties being extremely numerous, and the specific distinctions very uncertain. The RASPBERRY (q.v.) and BLACKBERRY (q.v.) are well-known fruits. The DEWBERRY (q.v.) and FLOWERING BRAMBLE or Brier Rose also belong to this genus. Besides these, and the species most nearly resembling them, and which have been described with them, notice may be taken of *R. spectabilis*, a shrubby species, with leaves of three leaflets, and fine large dark-purple fragrant flowers, produced singly on long terminal flower-stalks; native of the banks of the Columbia river. The fruit is about the size of a raspberry, dark yellow, acid, and somewhat astringent, making excellent tarts.—*R. saxatilis*, called sometimes the *Stone Bramble*, is a perennial herbaceous plant, with slender stem, leaves of three leaflets, small greenish-yellow flowers, and pleasant fruit of very few

RUBY.

rather large drupes. It is a native of stony places, in mountainous parts of Britain.—*R. arcticus* is a small herbaceous plant with creeping roots, slender stems 2-6 inches high, each with three or four leaves, which have three leaflets; the flowers large and of deep rose color, and a purplish-red fruit of exquisite flavor. This interesting plant is abundant in Norway and Sweden, Siberia, and other arctic countries. In Siberia, it is known by a name signifying *Prince-berry*. A syrup, a jelly, and a wine are made of it. The fruit is highly esteemed.

RUBY, n. *rô'bī* [F. *rubis*; Sp. *rubi*, the ruby—from L. *ruber*, red: It. *rubino*] : precious stone, varying in color between a bright carmine and crimson: redness; anything red: a blotch; a carbuncle: among *printers*, a letter of a small size: ADJ. of the color of the ruby; red: V. to make red. RU'BYING, imp. RU'BIED, pp. -*bīd*: ADJ. red as a ruby. RU'BIFORM, a. -*fawrm* [L. *forma*]: having the character of redness, or approaching to it. RU'BIOUS, a. -*bī-ūs*, in *OE.*, ruddy; red.—The *Ruby* is a gem much prized, inferior in value to only the diamond, or perhaps also to the sapphire. It is regarded by mineralogists not as a distinct species, but as a mere red-colored variety of Sapphire (q.v.) or of Spinel. The *Balas R.* is rose-red. The *Almandine R.* is tinged with violet or brown. The finest red rubies are generally known as *oriental rubies*, and are indeed brought from the East, chiefly from Ceylon and the Burman empire. The best generally come from the neighborhood of Syriam, in Pegu. In Ceylon, rubies are found in remarkable abundance in alluvial deposits, which have been searched for them for ages, while the natives seem never to have thought of digging in the rock of the mountains; but Dr. Gygax found innumerable small rubies, in a state of decomposition, falling to powder, in a stratum of gray granite, with iron pyrites and molybdena; and Sir James E. Tennent thinks that mines might be opened with confidence of success. Sir Alexander Burnes describes a ruby mine at Badakhshan, in Bactria. Tavernier states that the throne of the Great Mogul was adorned with 108 rubies, of 100 to 200 carats each. The king of Aracan is said to have possessed a R., in the form of a six-sided prism, about an inch in diameter, terminated by a six-sided pyramid. But the greatest R. ever heard of was that possessed by the king of Ceylon, which, according to Marco Polo, was a span in length, as thick as a man's arm, and without a flaw. Kúblai Khan sent an ambassador to demand this R., offering the value of a city as its price; but the Ceylonese monarch refused to sell it. What has become of it is not known.

Rubies were discovered in N. Carolina 1871 in considerable quantities, associated with other corundum gems. Rubies and sapphires have been found also at Vernon, N. J.; near Helena, Mont.; at Santa Fé, N. Mex.; in s. Colo.; and in Arizona.

Rubies have been produced artificially by chemical reactions, but the gems so produced have been of minute size. Frémy and Verneuil, chemists, announce (1891) production of rubies of merchantable size. Their process consists in heating alumina and a minute quantity of potassium bichromate with barium fluoride to a high temperature for several days: the addition of a small amount of potassium carbonate promotes crystallization.

UCHE, n. *rôsh*, or RUCHEING, or RUCHING, n. *rôsh'ing* [F. *ruche*, a bee-hive, from the quillings resembling honeycombs]: quilled or gaufered net, lace, silk, and the like, used as trimming for ladies' dresses and bonnets.

RUCK, n. *rūk* [Icel. *hrucka*, to wrinkle: Dut. *kreuk*, a wrinkle: Norw. *rukka*, a crease]: a crease or wrinkle in cloth: V. to crease, as linen. RUCK'ING, imp. RUCKED, pp. *rūkt*. RUCKLE, v. *rūk'l*, to rumple into wrinkles.

RUCK, v. *rūk* [Gael. *ròc*, to croak: Dan. *skrukke*, to cluck]: in OE., to squat or cower down as a hen over her chickens; to sit close. RUCK'ING, imp. RUCKED, pp. *rūkt*. RUCKING HEN, a brooding hen which clucks.

RUCK, n. *rūk* [see RICK]: a heap, as of stones; a disorderly mass; the herd or multitude that have no independent opinions; the fag-end. RUCKLE, n. *rūk'l*, a loose heap; a confused mass.

RUCKERT, *rūk'kért*, FRIEDRICH: German lyric poet: 1788, May 6—1866, Jan. 31; b. at Schweinfurt. He studied at the gymnasium of his native town, and at Jena Univ. In 1826 he was nominated prof. of oriental languages at Erlangen; went 1840 to Berlin, as prof. and privy councilor, but resigned 1849, and lived on his estate of Neuses in Coburg. R. began his literary career under the pseudonym Freimund Raimar with his *Deutsche Gedichte* (German Poems, Heidelb. 1814), and *Napoleon, eine politische Komödie in drei Stücken* (Napoleon, a Political Comedy in Three Parts, Stuttg. 1816). Under his own name he published: *Kranz der Zeit* (A Wreath of the Time, Stuttg. 1817); *Oestliche Rosen* (Eastern Roses, Leip. 1822); *Gesammelte Gedichte* (Collected Poems, 6 vols. Erl. 1834–38). Fruits of his oriental studies are his numerous translations, and several of his many original poems. He published also four dramas: *Saul und David* (Erl. 1843); *Herodes der Grosse* (2 vols. Stuttg. 1844); *Kaiser Heinrich IV.* (2 vols. Frank. 1845); *Cristoforo Colombo* (2 vols. Frank. 1845).—R. was one of the most learned, versatile, and sprightly lyrists of modern times. He tried all sorts of meters, the Greek hendecasyllabic, the old Norse alliterative verse, the old German couplet, the *Nibelungen* strophe, the popular ballad, the delicate yet stately measure of the eastern gazelle (sonnets), and every kind of European quatrains, distiches, etc.; and he succeeded in all. Perhaps his fancy and wit were more remarkable than his depth of lyric feeling, yet the simple pathos of such pieces as the *Aus der Jugendzeit* could hardly be surpassed.

RUDD—RUDDILY.

RUDD, n. *rŭd* [W. *rhudd*, crimson : AS. *rudu*, redness] : river-fish of reddish-golden hue, and with red eyes—named also **RED-EYE** (q.v.).

RUDDER, n. *rŭd'dér* [original Eng. word] : in a ship or boat, that part of the steering apparatus which is in

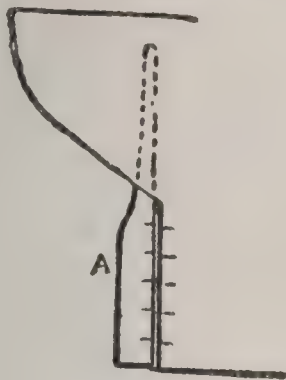


Fig. 1.



Fig 2.

A, brace; B, pintle.

immediate contact with the water. It is shaped as at A (fig. 1), hung to the stern-post by pintle and brace hinges (fig. 2), and the upper end passing into the vessel is acted on by the tiller. So long as the rudder, AB. (fig. 3), is in a straight line with the keel, the water which the vessel leaves behind acts equally on both sides, producing equilibrium; but if the rudder be turned, as AB', it will be relieved from the pressure on the side DC, while that on the side DE will act with greater force, and cause the ship to revolve round the centre of gravity, G. When the head has turned sufficiently, as to D', the rudder is again put in line with the keel: see

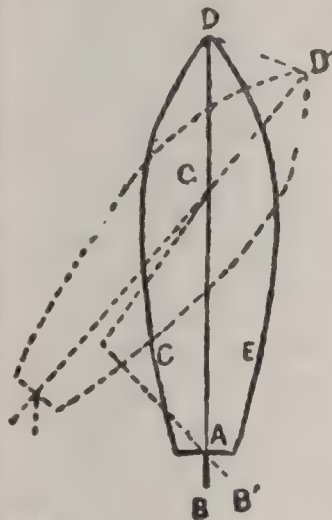


Fig. 3.

HELM. **RUDDERLESS**, a. without a rudder.

RUD'DER-FISH: fishes of the Rudder-fish family, *Stromateidæ*; especially, as bearing the name, the Black R.-F. (*Lirus perciformis*), called also Log-fish, and Barrel-fish, because usually found near floating spars and casks, as well as near rudders and under boats. It attains a length of 10-12 in., undergoes considerable change of color from time to time, and is of excellent flavor. Its probable range is from Halifax to Cape Hatteras. The Banded R.-F. (*Seriola zonata*) is of the Amber-fish family, 6-8 in. long, of beautiful colors, good flavor, and named from its resemblance to the Pilot-fish (*Naucrates ductor*), which also is called R.-F., and has the singular habit of keeping company with large fish, especially sharks, and also with ships, which it sometimes follows into our harbors.

RUDDILY, RUDDINESS: see under **RUDDY**.

RUDDIMAN—RUDE.

RUDDIMAN, *rŭd'dī-man*, THOMAS: greatest of Scottish grammarians: 1674, Oct.—1757, Jan. 19; b. Raggal, Banffshire, Scotland. He received the rudiments of classical education at the parish school; and at 16 years of age went to King's College, Aberdeen, where he took his degree M.A. four years later. On leaving the univ. he became tutor in a private family, and afterward parish schoolmaster of Laurencekirk. Through the influence of the physician and Latinist Dr. Archibald Pitcairne, R. was appointed assistant-keeper of the Advocates' Library, Edinburgh; but the remuneration was so small, that 1707 he began business as an auctioneer. He then began his career as an editor; and in 1714 appeared his well-known work, *Rudiments of the Latin Tongue*, a text-book from which, under variety of forms, his countrymen are still initiated into classical literature. In 1715 he published his great ed. of Buchanan's works (2 vols. folio); and in that year exchanged the calling of an auctioneer for the more congenial one of printer, having his brother as partner. In 1725 he published the first part of his great grammatical work, *Grammaticæ Latinæ Institutiones*, treating of the Etymology of the language; and 1732 the second part, which treats of the Syntax. His philological reputation rests mainly on this work, re-edited in Germany by Stallbaum, and repeatedly referred to in the Latin Lexicon of Freund. He was next made principal keeper of the Advocates' Library. While in this post, he completed (with appendices and learned Latin introduction) Anderson's magnificent *Diplomata et Numismata Scotiae* (folio 1739). He pub. 1751 an ed. of Livy 4 vols. 12 mo, a gem of typography, still known as the 'immaculate' edition, from its entire exemption from errors of the press. R. died in Edinburgh in his 83rd year. In politics, he was an ardent tory and Jacobite; in private life, most upright and estimable. He founded the *Caledonian Mercury* newspaper, and pub. or edited a multitude of minor tracts and books. See his life by Chalmers (1794).

RUDDLE, n. *rŭd'dl* [W. *rhuddell*, ruddle: AS. *rudu*, redness]: a species of red earth; red chalk; red ochre: V. to mark with ruddle, as sheep. **RUD'DLING**, imp. **RUD'DLED**, pp. *-dld*. Same as **REDDLE** and **RADDLE**, which see.

RUDDOCK, n. *rŭd'dŭk* [AS. *rudduc*; W. *rhuddog*, a ruddock—from *rhudd*, crimson]: the robin-redbreast.

RUDDY, a. *rŭd'dī* [Low Ger. *rood*; W. *rhudd*; AS. *rudu*, redness—akin to Gr. *rhodon*, a rose: Gael. *ruadh*, red]: tinged with red; of the color of the human skin in high health. **RUD'DILY**, ad. *-dī-lī*. **RUD'DINESS**, n. *-nēs*, a lively flesh color; that redness of the face which indicates perfect health.

RUDE, a. *rôd* [F. *rude*—from L. *rudis*, rough, raw, wild: It. *rude*]: unformed by art; such as may be done

RUDENTURE—RUDIMENT.

by strength without the aid of art; shapeless; untaught; rough; inelegant; coarse in manners or behavior; impertinent; not polished or refined; boisterous; harsh; inclement. RUDE'LY, ad. -lĭ, unskilfully; coarsely; uncivilly; violently; fiercely. RUDE'NESS, n. -nĕs, the state of being rude; coarseness of manners; incivility; unskilfulness; inelegance; violence; impetuosity.—SYN. of 'rude': rough; coarse; uncivil; impolite; brutal; violent; tumultuous; boisterous; turbulent; inclement; harsh; untaught; raw; ignorant; rugged; uneven; shapeless; unformed; inelegant; impertinent; unfashioned; artless; unpolished; uncouth; rustic; vulgar; clownish; unskilful; illiterate; saucy; impudent; insolent; surly; currish; churlish; uncivilized; barbarous; savage; fierce; impetuous; severe.

RUDENTURE, n. rô-dĕn'tūr [F. *rudenture*, *rudenture*—from L. *rudens* or *rudē'tem*, a rope or line]: in *arch.*, the figure of a rope or staff with which the flutings of columns are sometimes filled—usually one-third of the height; called also *cabling*. It is sometimes plain, sometimes ornamental.

RUDESBY, n. rôdz'bĭ [*rude*, and *boy*]: in *OE.*, an uncivil turbulent fellow.

RÜDESHEIM, rŭ'dĕs-hĭm: small town on the right bank of the Rhine, Prussian province of Hesse-Nassau, opposite Bingen. Near R. is grown one of the most esteemed of the Rhine-wines (q.v.), *Rüdesheimer*. Here stands the great German national monument of Germania, inaugurated 1883. Pop. 3,600.

RUDIMENT, n. rô'dĭ-mĕnt [F. *rudiment*—from L. *rudimen'tum*, a first attempt or trial—from *rudis*, unformed, unused: It. *rudimento*]: a first principle or element; anything in a rude imperfect state. RU'DIMENTS, n. plu. elementary instruction. RUDIMENT'AL, a. -mĕnt'al, or RU'DIMENT'ARY, a. -ĕr-ĭ, pert. to first principles; in an original or simple state; in *bot.*, in an early stage of development, or in an imperfectly developed condition.

RUDOLF.

RUDOLF, *rô'dôlf* (or **RO'DOLF**), OF HAPSBURG, German King: founder of the imperial dynasty of Austria, which for a time was that of Germany: 1218, May 1—1291, July 15 (reigned 1273–91); son of Albert, Count of Hapsburg, and Hedwig of Kyburg-Züringen. R. early showed great personal daring and military skill, and acquired celebrity in his native canton of Aargau for prowess in repulsing the many banditti who infested the district. The death, 1264, of his uncle, Hartmann of Kyburg, to whose rich heritage he succeeded, raised him from a poor noble to an influential lord of extensive territories, including the greater part of Aargau, and various domains in the cantons of Bern, Lucerne, Zug, and Zürich. His ability in government attracted the notice of some of the great electoral princes of Germany; and on the death of Emperor Albert 1273, R. was elected his successor, through the instrumentality chiefly of his powerful friend, the abp. of Mainz. The ratification by Pope Gregory XI. of R.'s title was obtained by various concessions—e.g. renunciation of jurisdiction in Rome, and of feudal superiority over Spoleto and the Marches of Ancona; with the cession of all right on the part of the emperor and his successors to interfere in ecclesiastical elections, or in the internal administration of the German Church. By this agreement, the feuds were appeased which had existed nearly 200 years between the empire and the see of Rome, and R. was able to attend to the settlement of the internal disturbances of Germany. His chief enemy was Ottocar, King of Bohemia, under whom he had once served against the Prussians and Hungarians, and who now refused to do homage to him. The Bohemian king was twice defeated, and was killed in battle (1278), when the emperor seized all the Austrian territories which Ottocar had possessed. Wenceslaus, son of the slain king, having lost no time in tendering homage to R. for the kingdoms of Bohemia and Moravia, the cause of the war was at an end; and R. applied himself to the organization of the state. He did much toward breaking the lawless power of the nobles, by compelling them to demolish the fortresses and strongholds, from which they carried on plundering expeditions against one another, and defended themselves from the power of the law; and we are told that in one year he condemned to death 30 refractory nobles, who had long disturbed the public peace, and razed to the ground about 60 strongholds. He also granted charters to many trading towns and municipalities, and thus gave considerable impetus to trade. The policy of his rule generally was to favor the burgher and working classes, and to repress the tyranny of the powerful nobles. His reign commanded general respect. R. was succeeded in Austria by his son, Albert I., Duke of Austria. See Schönhuth, Huber, Lorenz; also Hirn, *R. von Habsburg* (1874).

RUDOLF II.—RUDOLSTADT.

RUDOLF II. (or **RO'DOLF II.**), Emperor of Germany : 1552, July 18—1612, Jan. 20 (reigned 1576–1612); eldest son of Emperor Maximilian II. of Germany. He was educated at the Spanish court by the Jesuits. On the death of his father 1576, he succeeded to the imperial crown, after having, during the lifetime of his father, been proclaimed king of the Romans (1575). This first reigning namesake of the great progenitor of the Austrian dynasty did not add to the dignity or greatness of the Hapsburg family; and the whole of his reign of 36 years was marked by his persecutions and intolerance, and by the discontent and even insurrection of his subjects. His bigotry and intolerance in forbidding Protestants the free exercise of their religion led them to ally themselves with their co-religionists in the Low Lands and in France (1608); and by implicating the empire in foreign wars, augmented taxation, and increased the monetary difficulties of the state. R., who was gloomy, taciturn, indolent, and bigoted, died unregretted by his subjects, leaving no issue, and bequeathing to his brother Matthias, who succeeded him, an impoverished and distracted state. R.'s taste for astrology and the occult sciences, and his anxious desire to discover the philosopher's stone, led him to extend his patronage to Kepler and Tycho Brahé, whose study of astronomy was thought specially to qualify them for that much-coveted discovery; and the patronage which R. extended to the Danish discoverer, when the latter was compelled to leave his own country, through the jealousy of his brother-nobles, constituted one of R.'s few claims to remembrance in later times. The important astronomical calculations begun by Tycho, and continued by Kepler, known as *The Rudolphine Tables*, were named from R., who originally undertook, but subsequently failed, for lack of means, to defray the expenses of the undertaking. See Gindely, *R. II. und seine Zeit* (1865).

RUDOLPHINE, a. *rô-dôl'fin* [in honor of Rudolf II., Emperor of Bohemia] : term applied to certain astronomical tables, composed by Kepler and founded on the observations of Tycho Brahé.

RUDOLSTADT, *rô'dôl-stât* : chief town of the principality of Schwarzburg-Rudolstadt, charmingly situated in a hill-girt valley, on the left bank of the Saale, 18 m. s. of Weimar. Pop. (1880) 8,747.

RUDRA—RUE.

RUDRA, *ró'dra*, in Vedic Mythology: collective name of the gods of the tempest, or Maruts, Rudra (in the singular) being the name of their father. (See John Muir's *Contributions to a Knowledge of the Vedic Theogony and Mythology*, in *Journal of the Royal Asiatic Soc.*, new series, I., part 4, London 1864.) In later and Purânic mythology (see INDIA—*Religion*: PURAN'A), R. (the terrible) is a name of S'iva, and the Rudras are his offspring. According to the *Vishn'u-Purân'a*, R. sprang from Brahmâ's forehead, radiant, fierce, and vast, of a figure half male, half female. 'Separate yourself,' Brahmâ said to him, and disappeared: obedient to which command, Rudra became twofold, disjoining his male and female natures, which he again divided into several persons, males and females—some beautiful, some hideous; some black, some white.

RUE, v. *rô* [AS. *hreowan*, to be sorry for, to lament: Ger. *reue*, repentance; *reuen*, to repent: Icel. *hryggr*, sorrowful]: to regret; to lament; to grieve for; in *OE.*, to have compassion; to repent: N. in *OE.*, sorrow; repentance. **RU'ING**, imp. **RUED**, pp. *rôd*. **RUE'EUL**, a. *-fûl*, woful; sad; mournful; expressing sorrow. **RUE'FULLY**, ad. *-lî*, mournfully; sorrowfully. **RUE'FULNESS**, n. *-nêš*, the state of being rueful; sorrowfulness.

RUE, n. *rô* [F. *rue*—from L. *ruta*; Gr. *rhûlē*, the herb rue], (*Ruta*): genus of perennial plants, of nat. order *Rutaceæ*, having a short 4-5-parted calyx, 4 or 5 concave petals, affixed by a claw, 8 or 10 stamens, and a 4-5-lobed germen, with 8 or 10 nectariferous pores at the base. The species are natives of s. Europe, n. Africa, the Canary Isles, and temperate parts of Asia. They are half shrubby; and have alternate, stalked, repeatedly pinnate leaves with translucent dots; the flowers small, in terminal corymbis. **COMMON R.**, or **GARDEN R.** (*R. graveolens*), grows in sunny stony places in countries near the Mediterranean. It has greenish-yellow flowers, and glaucous evergreen leaves with small oblong leaflets, terminal leaflets obovate. It is frequently cultivated in gardens in more northern countries. It was formerly called *Herb of Grace* (see *Hamlet*, act iv., scene 5), because it was used for sprinkling the people with holy water. It was in great repute among the ancients, having been hung about the neck as an amulet against witchcraft in the time of Aristotle. It is the *Pēganon* of Hippocrates. R. is still used in medicine as a powerful stimulant; but the leaves must be used fresh, as they lose their virtues by drying. The smell of R. when fresh is very strong, and to many disagreeable; yet the Romans used it much for flavoring food, and it is still so used in parts of Europe. The leaves chopped small are also eaten with bread and butter as a stomachic, but they must be used very sparingly, as they are acrid enough to blister the skin if much handled, and in large doses act as a

RUELLIA—RUFF.

narçotic poison. All their properties depend on an acrid volatile oil, used for making *Syrup of Rue*, eight or ten drops of oil to a pint of syrup; and this, in doses of a teaspoonful or two, is a useful medicine in flatulent colic of children. The expressed juice of R., mixed with water, and employed as a wash, promotes growth of the hair.—Some of the species found in n. India resemble



Common Rue (*Ruta graveolens*).

Common R. in their properties, and are used for the same purposes.—The Meadow Rue (*Thalictrum*) of several species in N. America is of another family, *Ranunculaceæ*, known as the Crowfoot family.

RUELLIA, rô-êl'li-a: genus of plants of nat. order *Acanthaceæ*, natives of tropical and sub-tropical Asia and Australia. Some are very beautiful, and are common ornaments of hothouses in western countries. In parts of China, especially in the province of Che-keang, and on the mountains west of Ningpo, a species of this genus, *R. indigofera*, is cultivated for the excellent indigo which it yields. It is a native also of Assam, and is cultivated there.—See Fortune's *Residence among the Chinese*.

RUFESCENT, a. rô-fēs'sënt [L. *rufes'cens* or *rufescen'tem*, becoming red; *rufesco*, I become red—from *rufus*, red]: growing red; approaching to reddish brown; tinged with red.

RUFF, n. rūf [Dut. *ruyffelen*, to rumple: Port. *arrufarse*, to curl, as the surface of water: Lang. *rufo*, a wrinkle or rumple]: a collar of plaited or puckered linen; anything puckered or plaited: species of bird like a snipe (see below): a variety of pigeon: V. in *OE.*, to ruffle; to disorder.

RUFF.

RUFF, v. *rŭf* [Scot. *ruff*, a roll of the drum, a beating with the feet in token of applause: Port. *rufa* or *rufla*, a roll of the drum]: in *Scot.*, to beat with the hands or feet, or with both, in token of applause: N. a beating with the hands and feet as expressive of approbation; a roll of the drum. **RUFF'ING**, imp.: N. applause by beating the hands and feet. **RUFFED**, pp. *rŭft*.

RUFF, n. *rŭf* [Port. *rufa*, a game with dice]: *formerly*, a popular game at cards; the act of winning the trick by trumping the cards of another suit: V. to trump any other suit of the cards at whist.

RUFF (*Philomachus pugnax*): only known species of its genus; bird of family *Scolopacidæ*, and, like snipes and many others of the family, inhabitant of marshy places. It is found in most of the n. parts of the world, migrating southward in autumn, and northward in



Ruff and Reeve (*Philomachus pugnax*).

spring. It is found in England and northern Europe and Asia, migrating south in the cold season. It has been set free on the Atlantic coast of the United States, and is becoming naturalized. In size, the R. is considerably larger than a snipe, and is about 12 inches in entire length from point of bill to tip of tail. The tail is short and pointed. The wings are long and pointed. The legs are long and slender, the *tibia* naked some distance above the tarsal joint. The bill is straight, rather slender, as long as the head. The neck of the male is surrounded, in the breeding season, with a *ruff* of numerous long feathers, whence probably the English name. The males are remarkable for diversity of colors, no two specimens being ever closely alike; but ash-brown prevails, spotted or mottled with black; the head, ruff, and shoulders are black, glossed with purple, and variously barred with chestnut. The female (the *Reeve*) is mostly ash-brown, with spots of dark-brown, much more uniform in color than the male. Their nest is

RUFF—RUFFLE.

usually on a tussock in a moist, swampy place, and is formed of the coarse grass which surrounds it: the eggs are four in number. The R. is taken for the table in spring, but the young birds taken in autumn are preferable. They are often fattened after being taken, and fed for market on bread and milk with bruised hempseed.

RUFF, or RUFFE, *rûf*, or POPE, n. [origin unknown], (*Acerina cernua*): pretty little fish of the Perch family (*Percidæ*), abundant in the lakes, slow rivers, and ditches of many parts of middle Europe and of England. It is



Ruff or Pope (*Acerina cernua*).

never more than five or six inches long. In shape, it resembles the common perch, but has only a single dorsal fin. The R. is esteemed for the table. It is very easily caught, a small red worm being used as bait.

RUFFED GROUSE: see BONASA.

RUFFIAN, n. *rûf'ji-an* [OF. *rufien*, *ruffien*, a pander (see also RUFFLE 3): It. *ruffiano*; Sp. *rufian*, a swaggerer, a bully]: a brutal fellow, ready for any desperate enterprise or crime: ADJ. brutal; savage: V. in OE., to play the ruffian; to rage; to raise tumults. RUF'FIANLY, a. -*li*, or RUF'FIAN-LIKE, a. like a ruffian; bold in crimes; violent. RUF'FIANISH, a. -*ish*, having the qualities or manners of a ruffian. RUF'FIANISM, n. -*izm*, the act, character, or conduct of a ruffian.

RUFFLE, n. *rûf'fl* [from RUFF 1, which see]: a strip of cambric or fine linen plaited or contracted into wrinkles, and sewed to the border of a garment, generally understood of ornaments at the wrist; disturbance; agitation: V. to wrinkle or plait a strip of fine cloth; to disturb a smooth surface, as water; to agitate; to disorder; to discompose; to put out of temper. RUF'FLING, imp. -*fling*. RUF'FLED, pp. -*fld*: ADJ. furnished with ruffles. RUFFLELESS, a. *rûf'fl-lës*, having no ruffles.

RUFFLE, n. *rûf'fl* [Port. *rufa* or *rufia*, a roll of the drum: F. *ronfler*; Lang. *rouflar*, to snore, to growl]: in *mil.*, a low vibrating roll—but less loud than the regular roll—of the drum, accompanied with the presenting of arms—a compliment to officers, and at milit. funerals: a kind of flourish upon a drum: V. to beat the ruffle.

RUFFLE—RUGBY.

RUFFLE, v. *rŭf'fl* [O. Dut. *roffelen*, *roffen*, to pander: Dan. *ruffer*, a pander]: in *OE.*, to bluster; to be noisy and turbulent; to jar. **RUF'FLING**, imp. *-fling*: **ADJ.** rough; turbulent: N. commotion; disturbance; agitation. **RUF'FLED**, pp. *-fld*: **ADJ.** rough; disordered; agitated. **RUF'FLER**, n. *-flér*, a bully; a blusterer.

RUFIN, n. *rô'fin* [L. *rufus*, red]: a red substance formed by the action of heat on phloridzin. **RU'FOUS**, a *-fŭs*, in *bot.*, reddish; orange-colored; rusty.

RUG, n. *rŭg* [W. *rhuwch*, a rug: Sw. *rugg*, long coarse hair: Ger. *rauh*, hairy, shaggy (see **ROUGH**)]: a coarse, warm, woolen cloth or coverlet having a long shaggy nap; a soft woolly mat or hearth-rug. **RUG-HEADED**, having rough unkempt hair; shock-headed.

RUGÆ, n. plu. *rô'jē* [L. *rugæ*, plaits or folds]: in *anat.*, the folds into which the mucous membrane of some organs is thrown by the contraction of the external coats. **RU'GATE**, a. *-gāt*, wrinkled. **RUGOSA**, n. plu. *rô-gô'sa*, an extinct ord. of corals. **RU'GOSE**, a. *-gôs*, full of wrinkles; rough with wrinkles. **RUGOSITY**, n. *rô-gôs'ĩ-tĩ*, the state of being wrinkled. **RUGOUS**, a. *rô'gŭs*, wrinkled. **RUGULOSE**, a. *rô'gŭ-lôs*, finely wrinkled.

RUGBY: colony in Morgan co., Tenn.; 7 m. w. of the Cincinnati New Orleans and Texas Pacific railroad, 141 m. n. of Chattanooga. It is on the famous Cumberland plateau, a mining and agricultural region of extraordinary richness; and owes its existence to a series of public lectures delivered in the United States by Thomas Hughes (q.v.), of England. A company was formed in New England to acquire land for a farming and industrial colony, and subsequently the company transferred its rights in the scheme to an English syndicate organized by Mr. Hughes in England with a cap. of \$750,000. A tract of 50,000 acres was purchased, the refusal of 350,000 more secured, a number of English farming families were sent out, and the settlement of the colony made with impressive ceremonies, in which Mr. Hughes participated, 1880, Oct. 5. A town was plotted, a hotel built, several industries were inaugurated, Mr. Hughes made annual visits for several years; and a brother, W. Hastings Hughes, became gen. supt. and manager; but the scheme never realized the anticipations of its projectors. It is now (1891) classed as a health resort with permanent pop. 200.

RUGBY—RUGEN.

RUGBY, *rŭg'bĭ*; market-town of England, county of Warwick, 15 m. n.e. of the town of Warwick, 30 m. e.s.e. of Birmingham; pleasantly situated on rising ground on the left bank of the Avon. It is reached by five railways. It derives its importance and celebrity from its grammar school, founded 1567 by Lawrence Sheriff, London shopkeeper. The buildings of the school, consisting of a fine Elizabethan quadrangle, with cloisters, and an elegant detached chapel, are of brick, with stonework round the windows and at the angles and cornices. The chapel contains, among other monuments of headmasters, that of Dr. Thomas Arnold. Among Dr. Arnold's successors were Tait, Abp. of Canterbury; and Temple, Bp. of London. The school is generally attended by about 500 pupils. The endowment produces about £5,000 a year, and it offers 20 exhibitions of values from £40 to £80 a year, tenable for four years. A park of 11 acres is set aside for foot-ball, cricket, and other games. The railways and the school give rise to almost all the trade of the town. Pop. (1881) 9,890. (1891) 11,262.

RUGELEY, *rŭj'li*: market-town, county of Stafford, England, on the right bank of the Trent. There are iron-works in the town, and collieries in the vicinity. Pop. (1871) 3,375; (1881) 4,249; (1891) 4,181.

RÜGEN, *rŭ'ghĕn*: island belonging to Prussia, largest of the islands of Germany; in the Baltic, off the coast of Pomerania; greatest length 33 m.; greatest breadth 28 m.; 360 sq. m. It is separated from the mainland, with which at one time it was probably connected, by a strait, about a m. wide. The island is so deeply indented on all sides by the sea, that it seems formed of several narrow tongues of land attached to each other, and to these the name peninsulas has been given. On the peninsula of Jasmund is the precipitous cliff Stubbenkammer, the highest point of which (420 ft.) is called the King's Seat, because Charles XII. witnessed from this spot a sea-fight between the Swedes and Danes, 1715, Aug. 8. R., formerly Swedish territory, was transferred to Prussia 1815. Hertha Lake, in this island, is believed to be the place where, according to Tacitus, the goddess Hertha (Earth) was worshipped. The soil of the island is productive; cattle are reared; and the fisheries are profitable. The scenery, everywhere pleasing, and frequently grotesque and romantic, together with the facilities for sea-bathing, attracts numerous summer visitors. Chief town, Bergen, in the middle of the island; pop. 4,000.—Pop. of island (1885) 45,039; (1890) 45,185.

RUGER—RUHNKEN.

RUGER, *ró'gér*, THOMAS HOWARD: milit. officer: b. Lima, N. Y., 1833, Apr. 2. He graduated at the U. S. Milit. Acad. 1854; resigned from the army the following year; and studied law and practiced in Janesville, Wis., till the beginning of the civil war. In 1861 he was appointed lieut.col. and promoted col. of the 3d Wis. vols.; 1862 promoted brig.gen. of vols.; 1864 brevetted maj.gen. vols.; 1866 appointed col. U. S. A.; 1867 brevetted brig.gen. U. S. A. for gallantry at Gettysburg; 1871-76 was supt. of the U. S. Milit. Acad.; 1886 promoted brig.gen. U. S. A.; and 1891, Apr. 8, was given command of the division of the Pacific, with headquarters in San Francisco.

RUGGED, a. *rŭg'gěd* [Sw. *ruggig*, rough, shaggy; Gael. *rug*, a wrinkle]: rough; uneven; shaggy; full of irregular points or asperities; rough in temper; harsh; rocky; inhospitable, as a coast. **RUG'GEDLY**, ad. *-lĭ*. **RUG'GEDNESS**, n. *-nĕs*, the quality or state of being rugged; roughness; harshness; coarseness; boisterousness.—**SYN.** of 'rugged': rough; shaggy; irregular; uneven; savage; brutal; rude; stormy; tumultuous; tempestuous; turbulent; harsh; sour; surly; discomposed; violent; boisterous; wrinkled; cragged; coarse; hard; crabbed; severe; austere; frowning; inclement.

RUGGLES, *rŭg'glz*, SAMUEL BULKLEY, LL.D.: 1800, Apr. 11—1881, Aug. 28; b. New Milford, Conn.: lawyer. He graduated at Yale 1814, studied law with his father, and was admitted to the bar in Poughkeepsie, N. Y., 1821. He was elected to the assembly 1838; a commissioner to locate the route of the Erie railroad; canal commissioner 1839, and pres. of the canal board 1840 and 58; commissioner of the Croton aqueduct 1842; U. S. delegate to international statistical congresses at Berlin 1863 and the Hague 1869; U. S. commissioner to the Paris exhibition and delegate to the international monetary conference 1867; and a trustee of Columbia College from 1836 till his death. He had for many years been a resident of New York. He received his degree from Yale 1859, and was author of numerous reports.

RUGIN, n. *ró'jĭn*: rough, nappy cloth.

RUGINE, n. *ró'jĕn* [F. *rugine*, a surgeon's rasp]: an instr. for removing diseased surfaces of bones; a surgeon's or dentist's rasp.

RUGOSE: see under **RUGÆ**.

RUHNKEN, *rôn'kén*, DAVID: illustrious scholar: 1723, Jan. 2—1798, May 14; b. Stolpe, in Pomerania. He received his academical education first at the Königsberg gymnasium, afterward at Wittenberg Univ., where he graduated 1743; after which he went to Leyden, and prosecuted classical studies under Hemsterhuis, giving particular attention to the Greek writers. He collected the scholia on Plato, and published an excellent ed. of Timæus's *Lexicon Vocum Platonicarum* (Leyd. 1754;

RUHR—RUIN.

re-edited and much improved 1789). He went 1755 to Paris, for prolonged examination of MSS. of the Royal Library and of the Library of St. Germain. Hemsterhuis then procured his appointment of lector (reader) in the Univ. of Leyden, as his own assistant and colleague. In 1761 he succeeded Oudendorp in the chair of eloquence and history. In 1767 he lost his friend and master Hemsterhuis; and in his capacity as rector of the univ. delivered a splendid tribute to the deceased (Leyd. 1768). The city of Leyden purchased R.'s great library after his death, and gave his widow an annuity of 500 florins.

R. was one of the best scholars and critics of the 18th c. His fine taste and sagacity, aided by an astonishing memory and vast learning, enabled him to illustrate the authors of antiquity with wonderful success. He was also a brilliant prelector, for which he was no doubt indebted to the extreme lucidity and grace of his Latin style. A list of his works would occupy much space. Among those not above noted are his ed. of vol. II. of Alberti's Hesychius; of Rutilius Lupus; of Velleius Paterculus; of Muretus, etc.—See his Life by Wyttenbach (Leyd. 1799; improved ed. Leips 1822, Freiberg 1846).

RUHR, *rôr*: river of Prussia, affluent of the Rhine, rising about a mile from Winterberg, in e. Westphalia, flowing w.n.w., and entering the plain of the Rhine at Mühlheim. It joins the great river at Ruhrort, two m. n.w. of Duisburg: total length 143 miles.

RUHRT, *rôr'ört*: small town of Rhenish Prussia, on the right bank of the Rhine, 63 m. n.e. of Aix-la-Chapelle by railway. It has the best harbor on the Lower Rhine, possesses many large ship-building docks, is the seat of an immense coal-trade with Holland—the coal being derived from large beds of the mineral on the banks of the Ruhr—and has large carrying-trade in corn, timber, and wool, and in miscellaneous articles. A large fleet of steamers, with passengers and traffic, ply from R. up to Strasburg, and down to Holland. A railway crosses the Rhine here, by means of a large steam ferry-boat on which the cars are transported—being lowered to the water on one side, and lifted to the railway on the other, by powerful engines in two towers each 128 ft. high. Pop. (1880) 9,130; (1890) 11,099.

RUIN, n. *rôin* [F. *ruine*—from L. *rũina*, a rushing or tumbling down, ruin—from *ruẽrẽ*, to fall with violence: It. *ruina*]: fall; destruction; overthrow; that change of a thing which destroys it, which entirely defeats its object, or which unfits it for use; subversion; that which destroys; loss of happiness or fortune; mischief: PLU. the remains of any decayed or demolished place or thing, as a house or city: V. to demolish; to destroy; to subvert; to bring to an end in any manner; to impoverish; to bring to misery or poverty. RU'INING, imp. RUINED, pp. *rôind*: ADJ. demolished; destroyed; reduced to poverty; undone. RU'INER, n. *-ér*, one who

RUKH—RULE.

ruins. RU'INOUS, a. -nūs, entirely gone to decay; dilapidated; tending to ruin; pernicious; baneful. RU'IN-
OUSLY, ad. -lī. RU'INOUSNESS, n. -nēs, the state or
quality of being ruinous. RUINIFORM, a. rō'īn-ī-fawrm
[L. *forma*, a shape]: in *geol.*, having the appearance of
ruins. RUIN-MARBLE, marble whose polished surface
presents the appearance of ruined buildings. RUINATE,
v. rō'ī-nāt, in *OE.*, to subvert; to demolish; to destroy
utterly. RU'INATING, imp. RU'INATED, pp. -īn-ā-tēd,
in *OE.*, ruined; destroyed. RU'INA'TION, n. -ā'shūn, in
OE., and now *familiarly*, subversion; ruin; utter de-
struction; a state of misery and want; overthrow.—
SYN. of 'ruin, v.': to subvert; demolish; destroy; im-
poverish; dilapidate;—of 'ruin, n.': destruction; over-
throw; subversion; downfall; waste; defeat; perva-
sion; pest; mischief; bane;—of 'ruinous': decayed;
pernicious; wasteful; injurious; mischievous.

RUKH: see Roc.

RULE, n. rōl [OF. *riule*, *riegle*—from L. *regūla*, a rule;
rego, I rule: Prov. *regla*; F. *règle*, a straight piece
of wood]: an instrument by which straight lines are
drawn, or short lengths measured; that which is estab-
lished by authority for guidance and direction; the law
of a society; government; supreme command; con-
trol; a prescribed mode of operation by which certain
results may be obtained; an order of a superior court;
in *gram.*, a statement by which some established order
in the construction of words is expressed; in *arith.*, the
prescribed mode for performing any operation: V. to
govern; to conduct; to direct; to determine, as a court
of justice; to decide; to lay down and settle; to exer-
cise supreme authority. RUL'ING, imp.: ADJ. having
control or authority; marking with lines, as with a ruler;
predominant; controlling; reigning: N. a rule laid
down by a judge or court of law. RULED, pp. rōld.
RULER, n. rōl'ēr, a governor; an instrument with a
straight edge or side for drawing straight lines. RUL'-
INGLY, ad. -lī. RULING ELDER, in the *Presb. Ch.*, a
member of the lowest ecclesiastical court, called a
'kirk-session,' a layman, whose office is generally to
assist the minister in the management of the secular
and spiritual interests of the parish. RULE NISI, rōl
nī'sī [L. *nisi*, unless]: in *law*, an order issued by a court
commanding a person or party in a case to show cause
why a certain thing should not be done; for *unless* good
reasons can be given against doing the thing, the *nisi*
rule shall be made *absolute* rule—i.e., the person or
party shall be compelled to do the thing. To procure
such an order is the first step in a certain class of appli-
cations to a court. RULE OFF, to detach or separate by
a line of separation; to delete or deduct, as bad debts.
—SYN. of 'rule, n.': regulation; maxim; canon; law;
precept; guide; direction; method; sway; empire;
government; order; control;—of 'ruling, a.': predomi-
nant; chief; governing; controlling; prevailing; prev-
alent.

‘RULE BRITANNIA’—RULE OF FAITH.

‘RULE BRITAN’NIA:’ one of the national anthems of Great Britain, which has been described by Southey as ‘the political hymn of this country as long as she maintains her political power.’ Its original appearance was in a masque entitled *Alfred*—words by James Thomson the poet, and David Mallet, music by Dr. Arne—performed first 1740, Aug. 1, before Frederick, Prince of Wales, at his residence at Cliefden. The words of the ode are believed to be the composition of Mallet. *Alfred* was altered by Mallet 1751, when three stanzas of *Rule Britannia* were omitted, and three others, by Lord Bolingbroke, substituted for them; but it is the ode in its original form that has taken root.

RULE OF FAITH, in Polemical Theology: term for that which is regarded as the code from which the faith of Christians is to be drawn. One of the most vital of modern religious controversies turns on the question: What is the Christian rule of faith? The Reformers, as a body, laid it down, as a first principle, that the Word of God alone, by which they meant the written word, or the Scriptures, could safely be accepted as a rule of faith: if the Fathers could be received at all, it is only in the light of witnesses, and fallible witnesses, to the ancient interpretation of the Scriptures. The Reformers, however, must be deemed to have allowed to the human reason and conscience the eminent office of deciding what writings shall be considered as giving adequate evidence of being Holy Scripture, with the further office of framing the principal truths of Scripture into a *system* of doctrine; while they must be deemed to have allowed to the church also the eminent office of authenticating and of enforcing on individuals this system of doctrine as a rule of faith.—The whole question is one as to the proper balance and harmonizing of various elements which are divinely assigned to the work of discovering and presenting to men the rule of faith. The view of the Reformers is much modified in the English Church of the Laudian period, and by the successors of that school, the modern Tractarians, who admit the ‘consent’ of the Fathers as an authoritative interpretation of the Scriptures. Rom. Catholics, on the contrary, while they admit that God’s word alone is the rule of faith, yet contend that the Scriptures are not to be considered as the only depository of God’s word. Much of the Lord’s teaching to his apostles was not committed to writing in these authentic Scriptures; and as the teaching of Christ, wherever found, is God’s word, even as much as what is written in the Scriptures, they hold that if it be possible to find such teaching elsewhere than in the Bible, the teaching so found is an essential part of the rule of faith. Now they hold that the traditions of the church, contained in the writings of the Fathers, the decrees of councils, the decretals of popes, are a depository of Christ’s teaching, less accessible indeed, but when unanimous not less

RULE OF THE ROAD—RUM.

certain, than the Scripture itself; and of this certainty of such unanimous interpretation, they regard the church as at all times the authoritative expositor.

Protestants acknowledge the authority of the oral teaching of Christ himself, and of his apostles or others speaking by inspiration; but by reason of the lack of any authoritative or trustworthy record, they deny that any such teaching, not recorded in the Scriptures, is of any value to us. As to the right of the church to expound authoritatively, they deny it altogether—i.e., they profess to deny it; though in effect many sects practically enforce their standards, creeds, or confessions as authoritatively setting forth the teachings of the Bible.

RULE OF THE ROAD: regulations for movements of conveyances or of persons in passing one another, either on land or at sea.—*On Land:* Drivers and riders keep the side of the road next their right hand when meeting: the person neglecting this rule is liable for any damage through such neglect. This rule in the United States is exactly contrary to the rule in Great Britain, where passing must be to the left-hand side of the road.—The rule as regards equestrians and foot-passengers is practically used; but has been held not legally compulsory. It is not so compulsory on vehicles that it may not be deviated from in special circumstances—due care and diligence being taken. A man riding against a horse that is standing, or a conveyance driving against another that is standing still, is answerable for any damage.—*At Sea:* see **NAVIGATION LAWS**. (Consult McCulloch's *Dictionary of Commerce*—art. 'Collision.')

RULE OF THREE, in Arithmetic: technical term for a rule in arithmetic, otherwise called Proportion (q.v.), which teaches the finding of a fourth number proportional to *three given numbers*. The term 'rule of three' has been in use from the beginning of the 16th c.; and from the great utility of the operation in commercial transactions, it received, almost from the commencement, the name of the **GOLDEN RULE** (q.v., under **GOLD**). To the ordinary 'rule of three' was added the *backer rule*, or 'rule of three inverse' (corresponding to inverse or Reciprocal [q.v.] proportion), and the 'double rule of three,' in which two or more ratios are given as determining the number to be found.

RUM, a. *rŭm* [*rome* or *rum*, in cant or gypsy language, signified 'good, noted:' in the primary sense, *rum* signifies bad]: odd; queer; curious; out of the way—all in a contemptuous sense.

RUM, *rŭm*: mountainous island of Argyleshire, Scotland; of the group of the Inner Hebrides, 15 m. n.n.w. of Ardnamurchan Point. It is 8½ m. long, 8 m. broad; 26,786 acres; about 6 per cent. of which is under cultivation. The island is a mass of high sharp-peaked mountains, rising in Haiskeval to the height of 2,659 ft. Pop. (1881) 89.

RUM—RUMEN.

RUM, n. *rŭm* [in the gypsy or slang tongue, *rum booze*, good drink, strong drink: derived by others from Mal. *bram*, *brum*, an intoxicating liquor: It. *rum*; Port. *rom*; F. *rhum*, rum]: spirits distilled from any of the product of the sugar-cane, generally from the refuse, and molasses. The scummings from the sugar-pans give the best rum that any particular plantation can produce; scummings and molasses the next quality; molasses the lowest. Before fermentation, water is added, till the 'sett' or wort is of the strength of about 12 per cent. of sugar; and every ten gallons yields one gallon of rum, or a little more. The flavor of rum depends mainly on soil and climate, and is not good where canes grow rankly. Pineapples and guavas are at times thrown into the still; but on the great scale, no attempt is made to flavor artificially. The finest-flavored rums are produced by the old-fashioned small stills. The modern stills, which produce a strong spirit at one operation, are unfavorable to flavor. The color of rum is imparted after distillation by adding a certain proportion (varying with the varying taste of the market) of caramel, or sugar melted without water, and thus slightly charred. Rum is greatly improved by age, and old rum is often very highly prized. **RUM SHRUB**, liqueur in which the alcoholic base is rum, and the other materials are sugar, lime or lemon juice, with the rind of these fruits added for flavor.

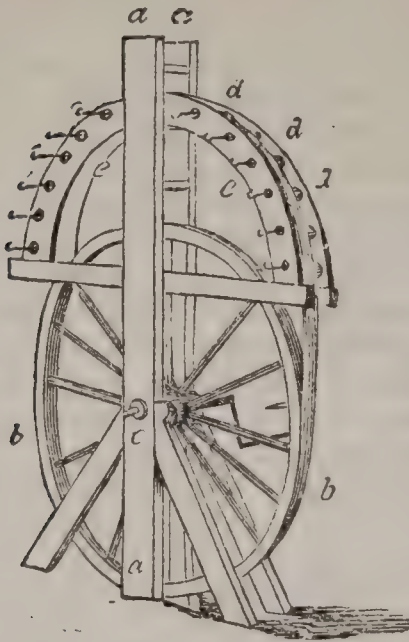
RUMA, *rô'mâ*: small town of Austria, in Slavonia, on an affluent of the Save, 35 m. n.w. of Belgrade. The chief industries are wine-culture and the rearing of horses. Pop. (1880) 7,800.

RUMA'NIA: see **ROUMANIA**.

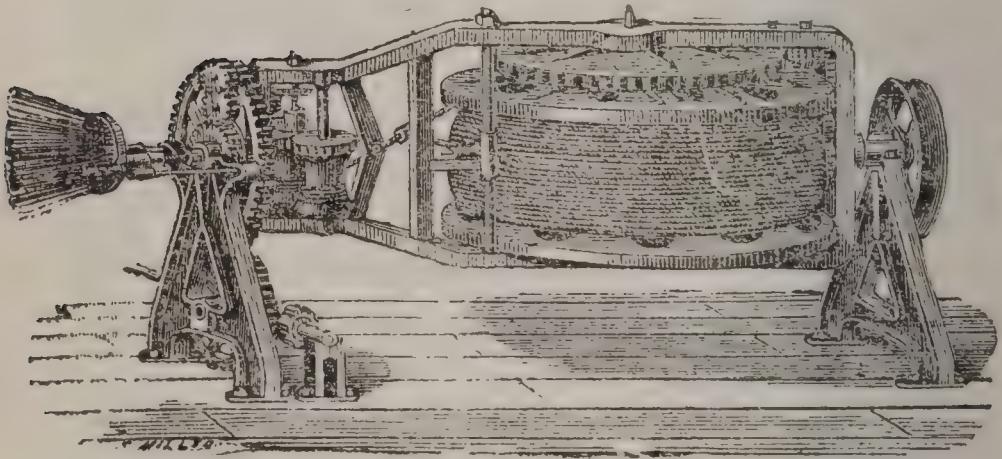
RUMB: for **RHUMB**, which see.

RUMBLE, v. *rŭm'bl* [Dut. *rommelen*; Dan. *rumle*; Ger. *rummeln*, to rumble: It. *rombare*, to make a clattering noise]: to make a low, heavy, continued sound, as of broad, heavy wheels: N. a hoarse, low, continued sound; a revolving cask or shaking-machine in which small cast-iron articles are cleaned and rubbed bright by friction against one another; a seat for servants behind a carriage. **RUM'BLING**, imp.: **ADJ.** making a low, heavy, continued sound: N. a heavy hoarse sound. **RUM'BLed**, pp. *-bld*. **RUM'BLINGly**, ad. *-lŭ*. **RUM'BLER**, n. *-blér*, he who or that which rumbles.

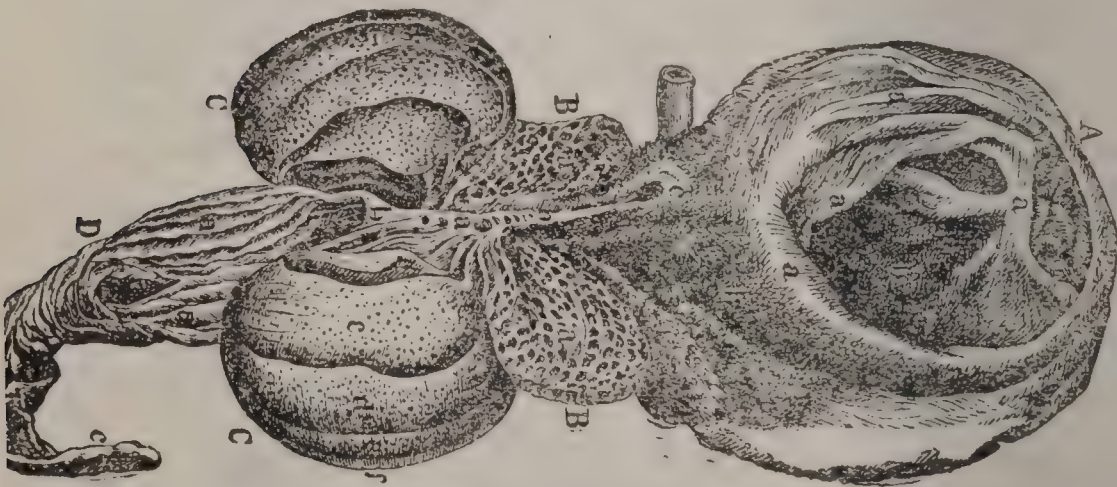
RUMEN, n. *rô'měn* [L., the throat]: the first cavity of the complex stomach of ruminants—often called the *paunch*.



The 'Whirl' Used in Hand Ropemaking.



American Ropemaking Machine.



Stomach of Ruminantia.

A, Paunch. B, Honeycomb Bag; C, Manyplies; D, Rennet.

RUMFORD.

RUMFORD, *rūm'fērd*, Count (Sir **BENJAMIN THOMPSON**): philosopher and governmental administrator: 1753, Mar. 26—1814, Aug. 21; b. Woburn, Mass. He was educated at a common school, and at the age of 14 was proficient enough in algebra, geometry, astronomy, and the higher mathematics to calculate an eclipse within four seconds of accuracy. He entered a merchant's office in Salem, Mass., at the age of 13, and got his living as a clerk and school-teacher, while he studied medicine and physics. In 1770 he was engaged as teacher of an acad. at Rumford, now Concord, cap. of N. H.; and 1772 married a rich widow of that place, daughter of a minister; and was made major of militia by Wentworth, the English gov. The jealousy of officers over whom he had been promoted, and charges of sympathy with the royal cause, at this period of the outbreak of the American revolution, made it prudent for him to remove to Boston, where he became acquainted with the Brit. commander, Gen. Howe; and when Gen. Washington compelled the surrender of Boston, Thompson was sent to England as bearer of dispatches. In London, he so won the favor of the govt. by his intelligence, as to be appointed under-sec. of state in the colonial office. On a change of ministry, however, he returned to America, and fought in the royal cause. When it failed, he left the Brit. army, with the rank of lieut. col., and entered the service of the king of Bavaria, having been knighted by George III.; and 1784 he was settled at Munich as aide-de-camp and chamberlain to the sovereign. In this post he evinced the energy of his mind and the fertility of his invention. He reorganized the army and improved its tactics. In 1790 he suppressed the long-prevalent beggary throughout the kingdom, took measures for improving the breeds of horses and cattle, and laid out a park for Munich. He rapidly rose to the offices of maj.gen., councilor of state, lieut.gen., minister of war; and was created Count of the Holy Roman Empire, when he chose Rumford (in N. H.), where his fortunes had begun, as his titular designation. In 1795 he visited London, where he was treated with much attention; and finding that his opinion was sought on technological subjects, he published the results of his experience and the records of his labors in Bavaria. Having long and carefully studied the phenomena of heat, he set himself to devise a remedy for the smoky chimneys, then among the greatest nuisances in England; and discovered the principles on which fireplaces and chimneys have since been constructed. Other cases in which greater economy of the application or production of heat could be obtained, as cooking-ranges, stoves, etc., engaged much of his attention. He was suddenly recalled to Bavaria, from whose cap., Munich, the elector had fled, as it was threatened by an Austrian and a French army. R.'s tact and energy prevented the hostile occupation of the city. He had been appointed

RUMILI—RUMINANTIA.

pres. of the council of regency; and soon afterward was appointed minister plenipotentiary to the court of St. James; but the British govt., holding to the doctrine of inalienable allegiance, refused to recognize a Brit. subject in that capacity. He declined an invitation to revisit America, where he was greatly admired in spite of his former loyalty to the crown. He finally settled in Paris; busied himself in improvements in artillery and illumination; founded a professorship, in Harvard College, of the application of science to the arts of living; married for his second wife the widow of Lavoisier; and died at Auteuil, near Paris, leaving many important bequests to the Royal Soc. of London, the Amer. Acad. of Sciences, and Harvard Univ. See *Memoir* by Ellis (1876).

RU'MILI: see ROUMELIA.

RUMINANT, n. *rô'mĩ-nănt* [F. *ruminant*—from L. *rumĩnans* or *rumĩnan'tem*, bringing up from the throat, chewing over again—from *rumen*, the throat or gullet: It, *rumĩnante*]: animal that chews the cud—e.g., cow, sheep, camel, etc.: ADJ. having the property of chewing the food over again; chewing the cud. RU'MINANTLY, ad. -*lĩ*. RU'MINATE, v. -*năt*, to pass the food from the stomach in order to chew it over again; to meditate; to think again and again; to muse on; to ponder over. RU'MINATE, a., or RU'MINATED, a. in *bot.*, applied to the hard albumen of some seeds presenting a mottled appearance and full of chalky matter. RU'MINATING, imp. RU'MINATED, pp. RU'MINA'TOR, n. -*tér*, one who ruminates or muses on any matter. RU'MINA'TION, n. -*nă'shũn* [F.—L.]: the act or power of chewing the cud; a musing or continued thinking on a subject.

RUMINANTIA, *rô-mĩ-năn'shĩ-a*: group of animals, in the division *Artiodactyla* (q.v.) of order *Ungulata*. Cuvier treated them as a separate order. The R. are an extremely well-defined group, among whose individuals the habit of *rumination* or chewing the cud is universal and almost peculiar. The R. are strictly and exclusively herbivorous, and have great similarity of structure. They have no incisors in the upper jaw, whose front is occupied by a callous pad. 'The grass is collected and rolled together by means of the long and movable tongue; it is firmly held between the lower cutting teeth and the pad, the cartilaginous upper lip assisting in this; and then, by a sudden nodding motion of the head, the little roll of herbage is either torn or cut off, or partly both torn and cut.'—Youatt. In the lower jaw, there generally appear to be eight incisors; but the two outer are properly to be regarded as canines, and in the *Camelidæ* they assume the ordinary canine form. Some of the R. have canine teeth in the upper jaw, and some are destitute of them. In front of the molar teeth, there is a long vacant space in both jaws. The molars are six on each side in each jaw; their surface exhibits crescent-shaped ridges of enamel. The head is elongated, the neck is always of considerable

RUMINANTIA.

length, the eyes are at the side of the head, and the senses of smell and hearing, as well as of sight, are acute. The head is in many R. armed with horns; which in some are found in both sexes, in some only in the male, while in others they are lacking; and this lack characterizes varieties of some species—e.g., of the sheep and ox, in which they are ordinarily present. The horns differ very much in different families, even in their structure, some being hollow (true *horns*), some solid (*antlers*). All the four limbs are terminated by two large toes which are hoofed. Behind the hoof are always two small spurs, rudimentary toes. The metacarpal and the metatarsal bones are united into one, the *cannon* bone. The legs are rather long, and the spinal column is very flexible. The brain of the R. is small, and they show little intelligence: they are not distinguished by any remarkable instincts; and though easily tamed, they are scarcely susceptible of training or education. Very few, however, of the numerous species of R. have been truly domesticated, and probably much is yet to be done in this way.

The R. are generally gregarious; they are distributed over almost the whole world; though none are natives of Australia. They are found in the warmest and the coldest regions. The flesh of all the R. is fit for human food; the fat (tallow) hardens more on cooling than the fat of other animals, and even becomes brittle. The fat, hide, horns, hoofs, hair, bones, entrails, blood, and almost all parts are useful to man.

The intestines are long in all the Ruminantia. The cæcum also is long. The complex stomach, adapted to rumination, consists of four distinct bags or cavities. The first of these, into which the gullet or œsophagus enters, is, in the mature animal, by far the largest; and is called the *Paunch* (L. *rumen*): into this the chief part of the food passes. It is lined with a thick membrane, presenting numerous prominent hard papillæ, secreting a fluid in which the food is soaked. The second cavity is the *Honeycomb Bag* (L. *reticulum*), so called from being internally covered with a network of cells, like those of a honeycomb. This second cavity, or stomach, has also a direct communication with the œsophagus, and fluids seem in general to pass immediately into it, but sometimes or partly also into the other cavities; and it is here chiefly that the cells for retaining water are found in the camel. The third cavity, or stomach, is the *Manyplies* (L. *psalterium*), so called because its lining membrane forms many deep folds, like the leaves of a book, beset with small hard tubercles: this also communicates directly with the œsophagus, by a sort of prolongation of it. The leaves of the membrane seem to serve for the absorption of superfluous fluid from the food. Finally, the food passes into the fourth cavity, which is more elongated than any of the others, and is next in size to the first. This, called the *Reed* or *Rennet* (L. *abomasus*), may be considered as the

RUMMAGE—RUMOR.

true stomach, homologous—if any one of the four parts can be so regarded—to the simple stomach of mammals in general. It is lined with a velvety mucous membrane in longitudinal folds. It is here that the gastric juice is secreted. In young animals, it is the largest of the four cavities, and it is only when they pass from milk to crude vegetable food that the paunch becomes enlarged, and all the parts of the complex stomach come fully into use. It seems to be by a power of what may be called instinctive volition that the animal directs what passes through the gullet into the first cavity, the second, or even the third. It has been found by Flourens, who made many experiments on this subject, that the food consumed by ruminants passed chiefly into the first cavity, but part of it also at once into the second, and even, when given in a *mashed* or in a much comminuted state, into the third.

The particular means by which hastily swallowed food is brought from the paunch, formed into pellets at the base of the œsophagus, and brought up into the mouth for rumination, or second and more thorough mastication, are not thoroughly understood, notwithstanding the patient investigations by Flourens. He ascribes the formation of the pellets, however, to the action of the muscular duct which connects the œsophagus with the second and third stomachs, and the power which the animal has of closing or opening at will the orifices of these cavities.

Chewing of the cud is performed usually in an attitude of repose, and evidently affords pleasure to the animal.

The R. are arranged by naturalists in seven families, all very natural—*Camelidæ* (see CAMEL), *Moschidæ* (see MUSK), *Cervidæ* (see DEER), *Camelopardidæ* (see GIRAFFE), *Antelopidæ* (see ANTELOPE), *Bovidæ* (q.v.), and *Capridæ* (q.v.). For the most important genera and species, see separate titles.

RUMMAGE, v. *rŭm'māj* [Dut. *ruim*, *room*, the hold of a ship; *ruimen*, to make room, to empty: OF. *rum*, the hold of a ship: OE. spelling, *romage*]: to search thoroughly among the things stowed in a given receptacle: N. the proper stowing of merchandise in a ship; a searching carefully by tumbling over things. RUM'MAGING, imp. RUM'MAGED, pp. *-mājd*. RUMMAGE SALE, a clearance-sale of unclaimed goods at the docks, or of the remainder of a warehouse stock.

RUMMER, n. *rŭm'mér* [Sw. *remmare*; Dut. *roemer*; Ger. *römer*, a large drinking-glass]: a large drinking-glass standing on a foot; a drinking-cup.

RUMOR, n. *rô'mér* [F. *rumeur*—from L. *rumor*, a repeated saying or telling, the talk of the many: It. *rumore*]: a story passing from one person to another without any known authority for its truth; a flying report: V. to circulate by report. RU'MORING, imp. RU'MORED, pp. *-mêrd*, reported. RU'MORER, n. *-mêr-ér*, in OE., a spreader of news or rumors.

RUMP—RUMP PARLIAMENT.

RUMP, n. *rŭmp* [Ger. *rumpf*; Dut. *rompe*, trunk, body separate from the extremities: Sw. *rumpa*; Gael. *rumpal*, the tail, rump]: the end of the backbone of an animal, with the parts adjacent; the fag-end of anything: in *Eng. hist.*, name applied to a parliament (see RUMP PARLIAMENT). **RUMP'ERS**, n. plu. *-érz*, in *Eng. hist.*, adherents or favorers of the Rump Parliament. **RUMP'LESS**, a. *-lës*, destitute of a rump or tail. **RUMP-STEAK**, n. *-stāk*, a choice slice or piece of beef cut from the thigh near the rump.

RUMPLE, v. *rŭm'pl* [AS. *gehrumpen*, wrinkled; *hrimpan*, to wrinkle: Dut. *rompelen*, to wrinkle; *rompel*, a wrinkle]: to disorder clothes by rough usage; to pucker; to wrinkle; to crush into irregular creases; to disorder: N. a pucker; a fold or plait. **RUM'PLING**, imp. *-plŭng*, forming into irregular inequalities, as cloth. **RUM'PLED**, pp. *-pld*. **RUM'PLY**, a. *-plŭ*, having rumples.

RUMP PARLIAMENT: in English history, name applied in contempt to the remnant of the Long Parliament after the expulsion of the Presb. members, who were deemed injurious to the popular cause by reason of their open or concealed sympathy with the king, Charles I. Two regiments of the army under Cromwell were sent under command of Col. Pride to the house of commons, 1648, Dec. 6; and 41 members of the Long Parliament who were favorable to compromise were detained in a lower room of the house, 160 were ordered to go home, and only 60 of the most thorough Independents were admitted. The clearance was called *Pride's Purge*, and the privileged members afterward passed by the name of the *Rump*, forming the fag-end of the Long Parliament. This assembly, in conjunction with the army, brought about the arraignment, trial, and condemnation of Charles I. Five years later, the Rump Parliament, forgetting that it was the creature of the army, made a stand against certain demands of the soldiers. The result was that Cromwell filled the house with armed men; the speaker was pulled out of the chair, the mace taken from the table, the room cleared, the door locked, and the parliament declared dissolved. Supreme in the three kingdoms, Cromwell convoked an assembly which assumed the title of Parliament, and acquired from the name of one of its most prominent members, a leather-seller, called Praise-God Barebone, the name of the *Barebone's Parliament*. The Barebone's Parliament, after five months, was dissolved; and Cromwell, raised to the dignity of Protector, convoked two parliaments, and dissolved them for questioning his authority as ruler. (For a brief presentation of the reasons for Cromwell's action in these matters, see CROMWELL, OLIVER.) On Oliver Cromwell's death, and Richard's succession to the protectorate, the military malcontents, coalescing with the Independents in Richard's parliament, declared the expulsion of the Rump illegal, and restored that assembly

RUMPUS—RUMSEY.

to its functions. With the revival of the Rump, its old quarrel with the army revived; and the troops, again surrounding Westminster Hall, expelled it 1659, Oct. 13, a provisional government of army officers assuming the direction of affairs. But the general dissatisfaction having led to a coalition between the Presbyterians and royalists, the army, unable to carry on the government, was reduced to the necessity of once more restoring the Rump, twice ignominiously expelled. The advance of Monk, however, with the army of Scotland, led to a general cry throughout the country for a free parliament. A number of the members who had been excluded by Pride's Purge, reappearing in the house, placed the Independents in the minority; and 1660, Mar. 16, the despised and derided Rump at last solemnly decreed its own dissolution. The most prominent members of the Rump Parliament were Vane and Hazlerig.

RUMPUS, n. *rŭm'pŭs* [It. *rombazzo*, a clatter: Swiss, *rumpusen*, to pull one another about: Icel. *rumr*, clash, noise]: a great disturbance; noise and confusion.

RUMSEY, *rŭm'zŭ*, JAMES: inventor: about 1743-1792, Dec. 23; b. Bohemia Manor, Md. He was a machinist, and his attention was early turned to schemes for improving the mechanism of grist-mills. He constructed 1784 a model of a boat for stemming currents by the force of the stream acting on settling poles. He was the forerunner of inventors of methods of 'jet propulsion'—the method of propelling vessels by discharging from a steam-pump jets of water against the wall of water astern: he exhibited such a 'jet-propelled' boat on the Potomac 1787, Dec. Of the 'Rumsey Soc.,' founded at Philadelphia 1788 to promote this invention, Benjamin Franklin was pres. R. went to England, and, with a boat constructed on his plans, there navigated the Thames, 1792, Dec. He died shortly afterward. He was author of *Short Treatise on the Application of Steam* (1788).

RUN.

RUN, v. *rŭn* [AS. *rinnan*, to run: Dut. and Ger. *rennen*, to run: Icel. *renna*, to flow: Sw. *rinna*; Dan. *rinde*, to flow]: to go, move, or pass on a surface in almost any manner; to cause to move swiftly; to move on the ground by long, quick steps; to rush violently; to fuse or melt; to become liquid; to take a course at sea; to drive with violence, as a ship ashore; to ply or pass, as a coach or ship; to move or flow, as water; to pursue; to contend in a race; to have success; to strive at, followed by *after*; to contract, as a debt, followed by *into* or *in*; to pass from one state or condition to another; to fall; to pass; to make transition; to proceed; to discharge matter, as a sore; to extend to: N. flow; course; motion; a pleasure-trip; continued success; an unusual demand on a bank for payment of its notes and for the return of deposits; distance sailed by a ship; a voyage. RUN'NING, imp.: ADJ. in succession; kept for the race; being in motion; flowing; successive; continuous; easy; discharging matter, as a sore: N. act of moving on with celerity; the discharge of a wound or sore; an expeditious way of joining together pieces of material in sewing. RUN, pp. *rŭn*. RAN, pt. *răn*, did run. RUNNER, n. *rŭn'nér*, he who or that which runs; a messenger; a racer; a pulley; a wheel; the support of a sleigh; in *bot.*, a leafy shoot; a slender prostrate stem rooting at the joints, as in the strawberry (see below). RUNNERS (see KIDNEY-BEAN). TO LET RUN, to allow to pass or move freely. TO RUN AFTER, to pursue or follow; to endeavor to obtain. TO RUN AMUCK, to run wildly and madly; to act entirely without discrimination (see AMUCK). TO RUN AT, to attack with sudden violence. TO RUN AWAY, to flee; to elope. TO RUN AWAY WITH, to carry off; to drag rapidly and with violence, as a horse running off. TO RUN DOWN, to chase to exhaustion, as a fox; to crush or overthrow; to traduce or censure; to attempt to lower or depreciate a man in the estimation of others. TO RUN DOWN A COAST, to sail along it. TO RUN DOWN A SHIP, to run against her and sink her. TO RUN IN, in *slang*, to take into custody, said of a policeman. TO RUN ON, to continue in the same line or course; to talk unceasingly. TO RUN OUT, to waste; to exhaust; to come to an end. TO RUN OVER, to overflow; to recount cursorily; to go over, as by riding or driving; to examine. TO RUN RIOT, to go to the utmost excess. TO RUN THROUGH, to expend; to waste; to pierce, as with a sword. TO RUN UP, to build hastily, as a house; to swell or increase, as an account; to erect. IN THE LONG RUN, at last; in the end or final result. THE COMMON RUN, the generality of people; ordinary course or kind. A SHEEP-RUN, a range or large extent of ground for feeding a flock. RUNNING FIGHT, a fight between a party pursuing and a party fleeing. RUNNING FIRE, the fire of troops in rapid succession. RUNNING KNOT, a kind of knot made to draw or slip easily, as on a snare for catching rab-

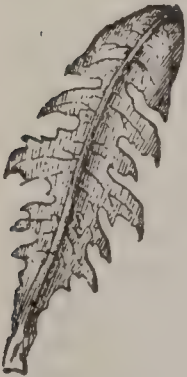
RUNAGATE—RUNDLET.

bits. RUNNING RIGGING, those parts of a ship's rigging or ropes which pass through blocks. RUNNING TITLE, the title of a book continued from page to page on the upper margin—called also a *heading*. RUNNING GOODS, to import or export them without paying duty; to smuggle. TO RUN HIS LETTERS, in *Scots law*, a process by which a prisoner, by giving notice to the authorities, may insist upon being brought to trial within 90 or 100 days after intimation.—SYN. of 'run, v.': to move quickly; pass; rush; flee; emit; go away; flow; stream; melt; fuse; proceed; vanish; fall; pierce; stab; incur; push.

RUNAGATE, n. *rŭn'a-gāt* [Eng. *run*, and OE. *gate*, a way: Skeat identifies *runagate* with *renegade*, which see]: a refugee; a fugitive; an apostate; a renegade.

RUNAWAY, n. *rŭn'ā-wā* [*run*, and *away*]: a fugitive; one who flies from danger or restraint.

RUNCINATE, a. *rŭn'si-nāt* [L. *runcinātus*, planed off; *runcinā*, a large saw]: in *bot.*, applied to a leaf toothed like a large pit-saw, having large marginal pisions directed in a curved and serrated manner toward the base, as the dandelion.



Runcinate
Leaf.

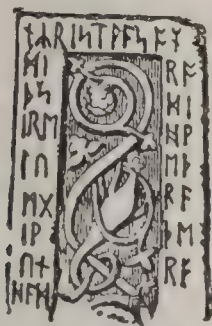
RUNCORN, *rŭng'kawrn*: thriving market and manufacturing town and river-port of Cheshire, England; on the left bank of the Mersey, 12 m. s.e. of Liverpool. There is a station of the North-western railway on the Lancashire side of the river, and the town is the terminus for the Bridgewater and the Mersey and Irwell canals. It is a free port, has a custom-house, and contains iron-foundries, soap and chemical works, ship-building yards, etc.; and in the vicinity are collieries, and slate and freestone quarries. Large quantities of freestone are shipped to distant ports. 2,861 vessels, of 237,000 tons, entered the port (1880). Pop. (1851) 8,049; (1871) 12,443; (1881) 15,113; (1891) 20,050.

RUNDLE, n. *rŭnd'l* [Ger. *rund*, circular: Eng. *round*]: a round; a step of a ladder.

RUNDLET, n. *rŭnd'lēt*, or RUNLET, n. *rŭn'lēt* [a dim. of Eng. *round*: OF. *rondele*, a rundlet]: a small cask or barrel.

RUNE.

RUNE, n. *rôn* [Goth. *runa*, a mystery, a furrow or line: Icel. *run*, plu. *runir*, runic letters: Gaei. *run*, a secret or mystery: Ger. *raunen*, to whisper: AS. *run*, a magical character]: secret alphabet or system of writing; a runic letter or character. **RUNES**, n. plu. *rônz*, runic letters or poetry. **RUNIC**, a. *rô'nîk*, pert. to the anc. Goths, or their language and letters: N. the letters of the alphabet of the anc. Scandinavians, principally formed of straight lines; also, the language.—*Runes* is the term for the earliest alphabet in use among the Teutonic and Gothic nations of n. Europe. The exact period of the origin of these characters is not known: their original use seems to have been for secret purposes of divination. The resemblance which some of the runic characters bear to the Phœnician alphabet, and



Part of Runic Cross at Ruthwell, Dumfriesshire.

others derived from it, has led to the supposition that they were introduced by Phœnician merchants who traded with the coasts of the Baltic; and while the mass of the people were allowed to know but little of them, the priests systematized them, and retained full knowledge of them for use in establishing reputation for superior power and intelligence. Scandinavian

and Anglo-Saxon legends agree in ascribing the invention of runic writing to Odin or Wodin. The countries in which traces of the use of runes exist include Denmark, Norway, Sweden, Iceland, Germany, Britain, France, and Spain; and they are found engraved on rocks, crosses, monumental stones, coins, medals, rings, brooches, and the hilts and blades of swords. Runic letters were often cut also on smooth sticks called *rûn-stafas*, or mysterious staves, and used for divination. But there is no reason to believe that they were at any time in such familiar use as are the characters of a written language in modern times, nor have we any trace of their use in books or on parchment. We have an explanation of the runic alphabet in various MSS. of the early middle ages, prior to the time when runes had altogether ceased to be understood.

The systems of runes in use among the different branches of the Teutonic stock were not identical, though their strong family likeness shows their common origin. The letters are arranged in an order distinct from that of any other alphabetical system, and have a purely Teutonic nomenclature. Each letter is, as in the Hebrew-Phœnician, derived from the name of some well-known familiar object, with whose initial letter it corresponds. Runes, being associated in the popular belief with augury and divination, were generally discouraged by the early Christian missionaries, who sought to supplant them by Greek and Roman characters. But it was not easy suddenly to stop their use, and runes are traced in early Christian inscriptions—especially in the Anglo-Saxon kingdoms of Northumbria, Mercia, and East Anglia, from the middle of the 7th to the middle of the 10th c. The prevalence of runic

RUNE.

writing in this district has been accounted for by the fact that, after the death of Edwin and the flight of St. Paulinus, the restoration of Christianity in Northumbria was by missionaries of the Irish school, whose predecessors had adopted the policy, not, like Augustine and his brethren, of destroying the monuments of pagan antiquity, but of allowing them to remain, and consecrating them by marking them with the symbols of Christianity. Runes are said to have been laid aside in Sweden at 1001, and in Spain they were officially condemned by the Council of Toledo, 1115.

The different systems of runes, all accordant up to a certain point, have been classed as the Anglo-Saxon, the German, and the Norse, each containing different subordinate varieties. The Norse alphabet is generally considered the oldest, and parent of the rest. It has 16 letters, corresponding to our *f, u, th, o, r, k, h, n, i, a, s, t, b, l, m, y*, but has no equivalent for various sounds which existed in the language, in consequence of which the sound of *k* was used for *g*, *d* for *t*, *b* for *p*, and *u* and *y* for *v*: *o* was expressed by *au*, and *e* by *ai, i, or ia*; and the same letter otherwise was made to serve for more than one sound. Other expedients, in the course of time, were employed to obviate the deficiency of the system, e.g., addition of dots, and adoption of new characters. But the runic system received fuller development among the Germans and Anglo-Saxons, particularly the latter, whose alphabet was extended to no fewer than 40 characters, in which seem to have been embraced, more nearly than in any modern alphabet, the actual sounds of a language. Till recently the Norse runes had been most studied; but of late the Anglo-Saxon have received considerable attention. The following table exhibits the best-known forms of the Anglo-Saxon, German, and Norse runic alphabets, with the names and the power of the several letters:

ANGLO-SAXON.			GERMAN.		NORSE.	
ƿ	feoh	f	ƿ	feh	ƿ	fé
u	ur	u (short)	u	uur	u	ur
þ	thorn	th	þ	dorn	þ	thurs
o	os	o (short)	o	oos	o	os
r	rad	r	R	rat	R	ridr
c	cæn	k	h	cen	γ	kaun
g	gyfu	g	Y	gebo		
w	wen	w	þ	huun		
h	hægel	h	H	hagal	*	hagl
n	nyd	n	†	nod	h	naud
i	is	i (short)	l	iis	l	is
y	gear	y (cons.)	ƿ	ger	h	ar

RUNE.

ANGLO-SAXON.			GERMAN.		NORSE.
∫	eoh	e (long)	∫	ih	
𐌺 𐌻	peorth	p	𐌺	perd	
ƿ	eolhx	x	χ	elix	
𐌺	sigel	s	𐌺	sigi	𐌺 sol
↑	tir	t	↑	ti	↑ tyr
ᛒ	beorc	b	ᛒ	borg	ᛒ biarkan
ᛞ	eh	e (short)	ᛞ	eh	
ᛞ	man	m	ᛞ ᛞ	man	† madr
ᛞ	lagu	l	ᛞ	lago	† laugr
ᛞ ᛞ	ing	ng	ᛞ	inc	
ᛞ	dæg	d	ᛞ	tag	
ᛞ ᛞ	cethel	o (long)	ᛞ	odil	
ᛞ ᛞ	ac	a (long)	ᛞ	ac	ᛞ ᛞ
ᛞ	asc	a (short)	ᛞ	asc	
ᛞ ᛞ	yr	y	ᛞ	yur	
↑	ear	au	↑	der	
*	icr	io			
ᛞ ᛞ	queorn	q			
ᛞ *	calc				
ᛞ	stan	st			
ᛞ ᛞ	gar	dzh			
ᛞ		ᛞ			
ᛞ					
ᛞ					
ᛞ	vult	ᛞ			
ᛞ					
ᛞ					
ᛞ					

The Anglo-Saxon runes, as here given, are from a variety of MS. authorities, the most complete containing 40 characters, while some extend as far only as the 25th or 28th letter. Neither the name nor the power of some of the later letters is thoroughly known, and they are without any equivalents in the Norse runic system. The German runes are from a MS. in the conventual library of St. Gall in Switzerland. Though the various runic alphabets are not alike copious, the same order of succession among the letters is preserved, except that, in the Norse, *laugr* precedes *madr*, although we have

RUNE.

placed them otherwise with the view of exhibiting the correspondence of the three systems. The number of characters in the Anglo-Saxon alphabet is a multiple of the sacred number eight; and we have the evidence both of a Swedish bracteate containing 24 characters, and of the above-mentioned St. Gall MS., that there was a recognized division of the alphabet into classes of eight letters—a classification which forms the basis of a system of secret runes noticed in that MS., of which runes there are several varieties specified.

The best-known inscriptions in the Anglo-Saxon runic are those on two gravestones at Hartlepool in Northumberland, on a cross at Bewcastle in Cumberland, and on another cross at Ruthwell in Dumfriesshire. The inscription on the w. side of Bewcastle cross, which we give as a specimen of Anglo-Saxon runes, is a memorial of Alefrid, son of Oswiu, who was associated with his father in the govt. of the kingdom of Northumbria, 7th c.

† | 4 4 X B M *
 N | 4 M † † F H
 P † R M H J M
 X F R † F B F † H
 N B † † F R B F R F
 A M B * A † I X
 F † * F R I H F X
 I * M * F H M
 F 4 N M 4 F P † N M

Runes.

It has been thus deciphered into the Anglo-Saxon dialect of the period :

† THIS SIGBECUN
 SETTÆ HWÆTRED
 EM GÆRFÆ BOLDU
 ÆFTÆR BARÆ
 YMB CYNING ALCFRIDÆ
 GICEGÆD HEOSUM SAWLUM.

Or, in modern English :

This memorial
 Hwætred set
 and carved this monument
 after the prince
 after the king Alefrid,
 pray for their souls.

RUNG—RUNIC STAFF.

The inscription on the Ruthwell cross, after being long a puzzle to antiquaries, was deciphered 1838 by John M. Kemble, eminent Anglo-Saxon scholar. It is written alternately down one side of the stone and up another, and contains a portion of a poem on the subject of the Crucifixion. Kemble's interpretation received satisfactory confirmation by the discovery of a more complete copy of the same poem in a MS. vol. of Anglo-Saxon homilies at Vercelli.

D. H. Haigh, whose researches have added much to our knowledge of Anglo-Saxon runes, has endeavored to set up for them a claim of priority over the Norse characters: his arguments are worthy of consideration, but can scarcely be called conclusive.

The Scandinavian kingdoms contain numerous runic monuments, some written *boustrophedon*, or with the lines beginning alternately from the right and left; and there are many interesting inscriptions on Swedish gold bracteates. The Celtic races, from their connection with the Scandinavians, became acquainted with their alphabet, and used it in writing their own language; hence in the Western Islands of Scotland, and in the Isle of Man, are runic inscriptions, not in the Anglo-Saxon, but in the Norse character, with a few peculiarities.

We find the Norse runes sometimes denoting numerals, in which case the 16 characters stand for the numbers from 1 to 16.

See Planta's essay, *On the Runic or Scandinavian Language*; W. C. Grimm, *Ueber Deutsche Runen*; *Archæologia*, XXVIII.; Haigh's *Anglo-Saxon Conquest of Britain*; Dr. D. Wilson's *Prehistoric Annals of Scotland*; the Danish works of Worsaae and Wimmer.

RUNIC KNOTWORK is a term often applied inaccurately to a kind of interlaced ornamentation in MSS. and on monuments of Anglo-Saxon, Norman, Scandinavian, Scoto-Irish, and Pictish origin, 6th to 12th century.

RUNG: pp. of the verb RING, which see.

RUNG, n. *rǣng* [Goth. *rugga*, a staff: Gael. *rong*; Icel. *röng*, a staff, the rib of a boat: Ger. *runge*, a bolt]: a staff; a spoke; a step of a ladder; a spar; a floor-timber in a ship.

RUNGPUR, *rǣng-pôr'*: British dist. of India, presidency of Bengal; bounded e. by the Brahmaputra, n. by the protected state of Cooch Behar; 3,476 sq. m.; pop. (1881) 2,097,964. The surface is so low that a large proportion of it is inundated during the rains. Indigo, for whose manufacture there are numerous large factories, is the great export.

RUNIC STAFF, n.: willow staff inscribed with runes, used in magical ceremonies or divinations.

RUNJEET-SINGH—RUNKLE.

RUNJEET-SINGH, *rŭn-jēt'-sīng*, Maharajah of the Punjab (generally described by English writers as *King of Lahore*): 1780, Nov. 2—1839, June 27; b. Gugaranwalla. His father, Maha-Singh, was sirdar of Sukur-Chukeah, one of the 12 missouls or military organizations of the Sikhs, and died when R. was about 12 years old, leaving a full treasury and a well-regulated government, in the hands of his widow. When R. was about 17 years old, his mother died suddenly; and he assumed the government, quickly showing an overwhelming ambition, and unusual capacity in policy and address, with great force of character. In 1799 he took possession of Lahore; and 1812, having compelled all but three of the Punjab sirdars to resign their authority, he organized the whole under one sovereignty, and proclaimed himself *rajah*. His army had been organized and disciplined after European fashion by English officers in his service, so that the wild and undisciplined troops of the neighboring states had no chance of successfully opposing him. About this time he obtained from one of the dispossessed rulers of Afghanistan the celebrated *Koh-i-nŭr* (q.v.), as the price of his assistance in recovering the throne of Cabul. In 1819 R. annexed Cashmere, and assumed the title *maharajah*. In 1822 he took into his service Allard and Ventura, two French officers who formerly served under Napoleon, and by their aid he finished the reconstruction of his army; and then (1829) wrested from the Afghans the province of Peshawar. He had now an extensive territory, peopled by more than 20,000,000, and a well-trained army of 70,000 men, of whom 36,000 were infantry, thoroughly disciplined. Between him and the British there was always mutual distrust, dissembled on both sides by show of extreme cordiality. R. is one of the remarkable men in eastern history. He was totally uneducated; could neither read nor write; yet showed indefatigable energy in administration, with a clemency rare in an Asiatic despot. See *English Cyclopædia*; Cuvilier-Fleury, *Notes Historiques sur le Général Allard*; *Revue Britannique*, X., XIII., XXIII., XXVII.

RUNKLE, *rŭngk'l*, JOHN DANIEL, PH.D., LL.D.: mathematician: b. Root, Montgomery co., N. Y., 1822, Oct. 11. While yet a student in the Lawrence Scientific School of Harvard Coll., he was appointed assistant in the preparation of the *Nautical Almanac* 1849; he continued in this work till 1884. He has been prof. of mathematics in the Mass. Institute of Technology since its foundation 1865, and was its pres. 1870-78. To his efforts principally was due the introduction of manual training in the institute. He is author of *New Tables for Determining the Values of Coefficients in the Perturbative Function of Planetary Motion* (1856); *Elements of Plane and Solid Analytic Geometry* (1888); and of many papers on manual training and industrial education.

RUNLET—RUPEE.

RUNLET: see **RUNDLET**.

RUNLET, n. *rŭn'lēt* [see **RUN**]: a little stream; a rivulet.

RUNNEL, n. *rŭn'nĕl* [see **RUN**]: a brook; a small stream.

RUN'NER, in Botany: long slender branch proceeding from a lateral bud of a herbaceous plant with very short axis, or, in popular language, without stem. It extends along the ground and produces buds as it proceeds, which often take root and form new plants. Strawberries afford a familiar example. Another is found in *Potentilla anserina*. Runners are common in the genus *Ranunculus*.

RUNNER, RUNNING: see under **RUN**.

RUNNET: see **RENNET 2**.

RUNNYMEDE, or **RUNNIMEDE**, *rŭn'ĭ-mĕd*: long green meadow, on the right bank of the Thames, from which it is partly concealed by plantations of willows, 20 m. w.s.w. of London. It is proposed to derive the name from the Sax. *rhynes*, water-brooks, which abound in these meadows; others suppose the word to be *Running-mead*, referring to the horse-races which appear to have been held here from time immemorial, and which still take place in August. R. is of great historical interest, from the fact that Magna Charta was signed by King John, 1215, June 15, either on this meadow, or on Charter Island, a short distance off the shore. The Great Charter itself professes to have been signed *per manum nostram in prato quod vocatur Runnimede*. See **MAGNA CHARTA**.

RUNRIG LANDS, n. plu. *rŭn'rĭg lăndz*: in *Scot.*, lands where the alternate ridges of a field belong to different proprietors; also, lands which consist not of ridges only, but of alternate portions of several acres each.

RUNT, n. *rŭnt* [*Scot. runt*, a cabbage-stalk: prov. Eng. *runt*, dead stump of a tree: Ger. *rumpf*, a trunk (see **RUMP**)]: an old woman or withered hag; a poor, lean, and sorry animal below the usual size.

RUPEE, n. *rô-pĕ'* [*Hind. rūpĭya*, a rupee]: an East Indian current silver coin valued about 2s. sterling (about 50 cents). The coin bearing the name R. was struck first by Shir Shah, and was adopted by Akbar and his successors; it was of the weight of 175 grains troy, and was considered to be pure; but in the decline of the Mohammedan empire every petty chief coined his own rupee, varying in weight and value. After many variations, the coinage of the E. India Company was entirely remodelled 1835, and a coin, thenceforth termed the company's R., with its proportionate sub-divisions, was struck to replace all former currencies, being of the same weight and fineness throughout, and bearing inscriptions in English, or in English and Persian, with the sovereign's head. A *lac* (lakh) of rupees is 100,000,

RUPERT.

and, with the rupee at 2s. (50 cents), would be worth £10,000 (\$50,000). A *crore* of rupees, 10,000,000, is accordingly worth from £1,000,000 to less than £800,000 (\$5,000,000 to less than \$4,000,000), according to the price of silver.

The recent depreciation in the value of silver has seriously affected Indian finances and Indian commerce, as well as the trade of the world. The R. has still the purchasing power of 2s. (50 cents) in India; but in England its market value had in 1885 fallen to 1s. 7d. (about 39 cents). As the govt. of India has yearly to send to England about 15 millions of pounds, gold value, the heavy loss is apparent.—The R. is current not in India only, but also in the islands of the E. Archipelago and various districts bordering on India.

RUPERT, *rô'pért*, Prince of Bavaria: 1619, Dec. 18—1682, Nov. 29; b. Prague; third son of the Elector Palatine Frederick V., and Elizabeth, daughter of James I. of England. He studied at the Univ. of Leyden. He fought during the 'Thirty Years' War against the imperialists, but was a prisoner of war 1638–42. He then retired to England, where he received from his uncle, Charles I. of England, a commission to command a regt. of horse at Worcester against the parliamentarians. The impetuosity with which he charged the enemy there, and in the battle of Edgehill, would have done more service to the royalists had not his rashness in pursuing the wavering foe nearly counteracted the advantages which he had gained. Subsequently, at Chalgrove, Newark, and Newbury, he was more successful; but his lack of patience, his petulant disregard of orders, and his hasty retreat from the field of battle at Marston Moor, resulted in consequences most disastrous to the royalist fortunes. His conduct at Naseby, and his hasty surrender of the city of Bristol, irritated the king, who forthwith deprived him of his command, and requested him to leave England without delay. He went to France and fought in the French service. In 1648, however, he was recalled to England, and appointed to command the royal fleet. In this new vocation he acquitted himself better; till, 1651, the great parliamentarian Admiral Blake attacked the prince's squadron, and burned or sunk most of his ships. With the few vessels remaining to him, R. escaped to the W. Indies, where with his brother Maurice he led a buccaneering life, maintaining himself and his men by seizing English and other merchantmen. After a few years R. eluded the vigilance of Cromwell's captains, and made his way to France, where he remained till the restoration of his cousin, Charles II. R. served with distinction under the Duke of York, and in concert with the Earl of Albemarle, against the Dutch, and died in possession of various offices and dignities, being a privy councilor, a member of the admiralty, gov. of Windsor Castle, etc. R. was always a stanch Protestant; but shared in the immorality of Charles's court. His last ten years were

spent in retirement in chemical, mechanical, and physical researches. He improved the mechanical mode of engraving in mezzotinto. The glass bead known as Prince Rupert's Drop (q.v.) was named from him.

RUPERT'S DROP: see PRINCE RUPERT'S DROPS.

RUPERT'S LAND: named from Prince Rupert (q.v.), one of the founders of the Hudson's Bay Company: formerly the official designation of the extensive tract which forms the basin of Hudson's Bay and Strait; bounded n., s., and e. by the watersheds of the Arctic, St. Lawrence, and Atlantic rivers. The w. boundary is from Deer Lake to a point a little w. of the Red River Settlement (q.v.). In 1870 the territory held by the Hudson's Bay Company was admitted into the Dominion of Canada, a portion of R. L. falling within the province of Manitoba. The whole of the vast territory known as R. L. slopes inward toward Hudson's Bay, and is well supplied with navigable rivers. The mountains of this region, chiefly on the boundaries, are of primitive rock, and a great portion of the country is densely wooded. The soil is rich, but the severity of the climate—which is also very variable in summer and autumn—mostly prevents cultivation of the cereals and other alimentary plants; in fact, they are planted only in the neighborhood of the trading posts of the Hudson's Bay Company (q.v.) and in the agricultural settlement on Red river, in the s.w. In the n., the vegetation and climate are those of the polar regions. The chief dependence of the inhabitants of R. L. for food and clothing is on the animal kingdom, here abundantly represented. Beavers are still found; and bears, otters, martens, and musk-rats are plentiful, their skins forming the chief commercial product of the country. There are also abundance of foxes of various colors, bears, wolves, Canadian lynxes, etc. Among animals used for food are the wapiti, reindeer, moose, and other species of deer; the musk-ox, hares, and an immense variety of wood-fowl and other birds. The numerous rivers and lakes are abundantly stocked with fish. The population, which is scanty, is composed of British or Canadians, and aboriginal tribes.

RUPIA, n. *rô'pĕ-a* [Gr. *rhupōs*, dirt]: eruption of the skin, characterized by flattish, distinct *bullæ* or blebs, containing a serous, purulent, or sanious fluid, which become changed into thick scabs. Several varieties of R. have been established by dermatologists. In its simplest form, the blebs are not preceded by inflammatory symptoms, are about an inch in diameter, and contain a fluid which is originally thin and transparent, but soon thickens, becomes purulent, and dries into brown ragged scabs, elevated in the centre. The scabs are easily separated, and leave ulcerated surfaces, on which several successive scabs usually form before healing. In a severer form, *R. prominens*, the scab projects so much in the centre as to resemble a limpet-shell in form.

RUPICOLA—RURAL.

R. is a chronic disease, usually limited to the limbs, the loins, and the nates. It is not contagious, and generally attacks persons debilitated by old age, intemperance, bad living, or previous diseases, especially small-pox, scarlatina, and syphilis. The general treatment consists mainly in administration of tónics, such as quinia, the mineral acids, ale, wine, animal food, etc. Some writers recommend tincture of serpentaria; and there is no doubt that certain cases which will not yield to tonics rapidly improve when treated with iodide of potassium. The local treatment consists in puncturing the blebs as soon as they arise, in removing the scabs by poulticing, and in applying a slightly stimulating application—e.g., solution of nitrate of silver—to the subjacent ulcers. The disease is frequently tedious and obstinate, but the patient almost always recovers.

RUPICOLA, n. *rô-pîk'o-la* [*L. rupes*, a rock; *colo*, I inhabit]: genus of insessorial birds called rock manakins or cocks of the rock; type of *Rupicolinæ*, a subfamily of *Pipridæ*. The species are remarkable for possessing an elevated crest of feathers on the head, and for the extreme freshness and delicacy of the color of their plumage. The adult males are of splendid orange color.

RUPPIN, NEU, *noy rûp'pên*: town of Prussia, province of Brandenburg, on a small lake of the same name, which communicates with the Elbe; 38 m. n. of Potsdam. It contains a castle and a lunatic asylum. The people are engaged in brewing, spinning, and manufacture of linen and woolen cloths. Pop. (1885) 14,677.

RUPTURE, n. *rûp'tûr* or *-chûr* [*F. rupture*, a rupture—from *L. ruptus*, burst, rent; *rumpĕrĕ*, to break]: act of breaking; state of being broken or violently parted; a fracture; a breach of peace; open hostility; a tumor caused by the protrusion of a part of the bowels; Hernia (q.v.): V. to part by violence; to burst; to suffer a breach or disruption. **RUP'TURING**, imp.: N. in *bot.*, an irregular manner of bursting. **RUP'TURED**, pp. *-tûrd*. **RUPTURE-WORT**, n. a British plant, the *Herniaria glabra*, ord. *Illecebracĕæ*.—**SYN.** of 'rupture, n.': breach; fracture; disruption; burst; dissolution.

RURAL, a. *rô'ral* [*F. rural*, rural—from *L. rurâlis*, belonging to the country—from *rus*, the country: It. *rurale*]: pert. to the country, as distinguished from the city or town; pert. to farming. **RU'RALLY**, ad. *-lĭ*. **RU'RALNESS**, n. *-nĕs*, the state or quality of being rural. **RU'RALIZE**, v. *-ĭz*, to ramble in the country; to lead a country life. **RU'RALIZING**, imp. *-zing*. **RU'RALIZED**, pp. *-ĭzĕd*. **RU'RALIST**, n. *-ĭst*, one who leads a rural life. **RURAL DEAN**, official, ordinarily a beneficed clergyman, appointed in an episcopal diocese, for a district called a deanery, to supervise church edifices and furniture, glebe houses, schools, appliances of public worship, etc.—reporting to the bishop. **RURI-DECANAL**, a. *rô'rĭ-dĕk'a-nal* [see **DECANAL**]: pert. to a rural dean.

RURIK—RUSA.

RURIK, *rō'rik*: considered the founder of the Russian monarchy: died 879. According to most authors, he was a 'Varangian' (Varangians = Normans of the Baltic coast) of Scandinavian origin, invited by the Slaves of Novgorod to come and rule over them; according to others, he was chief of a tribe of Norse colonists near the Gulf of Finland, and, after a long contest, subdued the northern Slaves and neighboring tribes of Finns; while Kostomarov attempts to prove him a Lithuanian. That he was either a Scandinavian or of Scandinavian origin, there seems very little doubt; and it is as generally maintained that, accompanied by his brothers, Sindf (Sineus) and Truvor, he, at the head of a small army, took possession of the country s. of the Gulf of Finland, Lakes Ladoga, Onega, and Bieloe 861 or 2, and laid the foundation of a monarchy. His brothers afterward settled, one at Bielo-Ozero, the other at Isborsk; but dying without issue, their principalities were united to Novgorod by Rurik. Novgorod was made the seat of govt. 864 or 865, and the various insurrections of his Slavic subjects were quenched in blood—Vadim, their leader, whose valor is celebrated by the ancient chroniclers, perishing by R.'s own hand. To secure himself and his descendants in their newly acquired territory, R. invited various colonies of Varangians to settle in the country. During his reign, some of the Varangians attempted a land expedition against Constantinople, but, renouncing the scheme, settled on the banks of the Dnieper, and founded the little state of Kiev. The family of R. reigned in Russia till the death, 1598, of Feodor, son of Ivan the Terrible, when, after a brief intestine contest, it was succeeded by the nearly allied House of Romanoff (q.v.). Many noble families of Russia are descended in the male line from R.; and the princes of Romodanofski-Ladyshenski are descendants in the female line.—See Prof. Thomsen's Lectures on this subject (1878).

RUSA, *rō'za*: genus of *Cervidæ*, or sub-genus of *Cervus* (see DEER), containing a number of species of deer, natives of the forests of the E. Indies; which may be described as stags with round antlers, a snag projecting in front just above the base of each, and the top forked, but the antlers not otherwise branched. They are generally of large size, and among them are some of the finest kinds of Asiatic deer. The GREAT R. (*R. Hippelaphus*) is supposed by some to be the *Hippelaphus* of Aristotle; but his description is not complete enough to identify the species: it is a native of Java, Sumatra, etc., and is about the size of a large stag, with brown rough hair, the neck with a long mane.—The SAMBUR or SAMBOO (*R. Aristotelis*) of India is a similarly large and powerful animal, and no Indian deer is more sought by European sportsmen. It is supposed by some to be also the *Hippelaphus* of Aristotle. The color is sooty brown, and the male has a mane. It is solitary in its

RUSCHENBERGER—RUSH.

habits, and delights in low forests where water abounds.
—The Axis (q.v.) is very nearly allied to this genus.



Sambur (*Rusa Aristoteiis*).

RUSCHENBERGER, rô'shén-bér-gér, WILLIAM S. W.: naval surgeon: b. Cumberland co., N. J., 1807, Sep. 4. He graduated from the medical dept. of the Univ. of Pennsylvania 1830; the following year was commissioned surgeon in the U. S. navy; served in the E. India squadron, at Philadelphia, and in the hospital at Brooklyn; was again in the E. Indies, and afterward with the Pacific and the Mediterranean squadrons. In the civil war he was at the navy-yard in Boston, was afterward on duty at Philadelphia, was retired 1869, Sep. 4, and became med. director on the retired list 1871, Mar. 3. He has been pres. of the Acad. of Natural Sciences in Philadelphia, and has published valuable works on the natural sciences.

RUS'CUS: see BUTCHERS' BROOM.

RUSE, n. rôz or rôs [F. *ruse*, cunning—from *ruser*, to use artifice, formerly a hunting term for the doubles of a hare in its attempts to escape the dogs—from L. *recusārē*, to reject]: means employed to deceive; a little artifice or stratagem; a clever trick or stratagem.

RUSH, v. rŭsh [Ger. *rauschen*, to rustle, to whisper, as the wind among bushes, to move swiftly: Dut. *ruyschen*, to roar, to groan: Norw. *rusk*, noise, rattle]: to tumble down with rapidity, as a stream; to move with force or violence; to enter with undue haste or eagerness: N. a violent motion or course; a driving forward with eagerness and haste. **RUSH'ING**, imp.: ADJ. moving with impetuosity: N. a violent driving of anything; rapid course. **RUSHED**, pp. rŭsh't. **RUSH'ER**, n. -ér, one who, or that which, rushes.

RUSH.

RUSH, n. *rŭsh* [AS. *risce*; Dut. and Ger. *rusch*; Gael. *ras*, a rush—the rush being probably so called from its whispering sound when moved by the wind]: a plant of many species growing on wet ground; the *Juncus glaucus* or hard rush, the *J. effusus* or soft rush, and the *J. conglomeratus* or hollow rush, ord. *Juncacęæ*, are used for mats and chair-bottoms. RUSH-LIKE, a. like a rush; weak. RUSHED, a. *rŭsh't*, covered with or made of rushes. RUSHY, a. *rŭsh'ĭ*, abounding with rushes. RUSH'INESS, n. *-nęs*, the state of abounding with rushes. RUSH-BOTTOMED, a. having a bottom made of rushes. RUSH-LIGHT, or CANDLE, a night-light having a wick of rush-pith. NOT WORTH A RUSH, worthless or of little value.

RUSH (*Juncus*): genus of plants of nat. ord. *Juncacęæ*, having a glume-like (not colored) perianth, smooth filaments, and a many-seeded, generally 3-celled capsule. The species are numerous, mostly natives of wet or marshy places in the colder parts of the world; some are found in tropical regions. Some are absolutely destitute of leaves, but have barren scapes (flower-stems) resembling leaves; some have leafy stems, the leaves rounded or somewhat compressed, and usually jointed internally; some have plane or grooved leaves on the stems; some have very narrow leaves, all from the root. The name R. perhaps properly belongs to those which have no proper leaves, of which we have several species. The COMMON R. (*J. effusus*) has round stems, bearing or not bearing small lateral heads of flowers, and popularly known as *Rushes*, used for plaiting into mats, chair-bottoms, toy baskets, etc. It is cultivated in Japan for making mats. In ruder times, when carpets were little known, rushes were much used for covering the floors of rooms; to which many allusions are in early English writers. The stems of the true rushes contain a large *pith* or soft central substance, sometimes used for wicks of candles. There are 14 species described in Gray's *Manual*, including, besides the Leafless R., 6 Grassy-leaved and 4 Knotty-leaved. The Wood R., with 1-celled pod and soft-hairy stem and leaves, is of the genus *Luzula*, *L. pilosa* having chestnut-brown umbels, and *L. campestris* light-brown. Rushes are often very troublesome weeds to the farmer. Thorough drainage is the best means for riddance of them. Lime, dry ashes, road scrapings, etc., also are useful. Tufts of rushes in pasture are a sure sign of insufficient drainage. Many marshy and boggy places abound in some of the species having leafy stems and the leaves jointed internally, popularly called *Sprots* or *Sprits* in England. They afford very little nourishment to cattle; but are useful for making coarse ropes for ricks, etc., stronger than those made of hay.



RUSH.

RUSH, BENJAMIN, M.D.: physician: 1745, Dec. 24—1813, Apr. 19; b. near Philadelphia; grandson of a Quaker follower of William Penn. He was educated at Princeton College; studied medicine in Philadelphia, London, Edinburgh, and Paris; and 1769 was made prof. of chemistry in the Philadelphia Med. College, and became a contributor to medical literature. Elected a member of the continental congress, he advocated and signed the Declaration of Independence. In 1777 he was appointed surgeon-gen. and physician-gen. of the continental army. His duties did not prevent him from writing a series of letters on the constitution of Pennsylvania, which was changed by his influence. He resigned his post in the army, because he could not prevent frauds on soldiers in relation to hospital stores. In 1785 he planned the Philadelphia Dispensary, first in the United States; and was a member of the convention which ratified the federal constitution. Retiring from politics, he became prof. of the theory and practice of medicine in the Philadelphia Med. College; and was so successful in treatment of yellow fever, 1793, that he was believed to have saved the lives of 6,000 persons. His practice, in consequence, became so large that he prescribed for 100 patients a day, whom he saw even at his meals. After his prosperity began, he gave one-seventh of his income in charity. Virulently attacked by Cobbett, who published a newspaper in Philadelphia, he prosecuted him for a libel, and recovered \$5,000 damages. His medical works brought him honors from several European sovereigns: the chief were *Medical Inquiries and Observations, Diseases of the Mind, Medical Tracts, Health, Temperance, and Exercise*. In 1779 he was appointed treasurer of the U. S. mint, which post he held until his death in Philadelphia.

RUSH, RICHARD: statesman: 1780, Aug. 29—1859, July 30; b. Philadelphia; son of Dr. Benjamin R. He graduated from Princeton College 1797, and after studying law was admitted to practice 1800. He was appointed atty.gen. of Penn. 1811, and in the same year became comptroller of the U. S. treasury; was U. S. atty.gen. 1814–17, and acting sec. of state part of the latter year; minister to England 1817–25, sec. of the U. S. treasury 1825–29, and an unsuccessful candidate for the vice-presidency 1828. He was appointed by Pres. Jackson to represent the govt. in the claim of the United States to the legacy of James Smithson, of England, and was minister to France 1847–49. While in England he negotiated the n.e. boundary, and other important treaties. He published *Narrative of a Residence at the Court of London from 1817 to 1825* (2 vols.), and *Washington in Domestic Life* (1857). After his death his sons published a vol. of his *Occasional Productions*.—His bro., JAMES R., M.D. (1786–1869; b. Philadelphia), graduated from Princeton College 1805, studied medicine, and practiced in his native city. He left

RUSH-NUT—RUSK.

about \$1,000,000 to found the Ridgway Branch of the Philadelphia Library, named in honor of his wife, from whom he received a fortune; but he imposed such peculiar conditions that his gift has been of little benefit. He published *Philosophy of the Human Voice* (1827); *Analysis of the Human Intellect*, 2 vols. (1865); and other works.

RUSH-NUT: see CYPERUS.

RUSHWORTH, *rŭsh'wérth*, JOHN: 1607–90; b. Northumberland, of anc. family: English compiler, whose work entitled *Historical Collections of Private Passages of State, Weighty Matters in Law, and Remarkable Proceedings in Parliament*, is a most important contribution to our knowledge of the civil war in the time of Charles I., and of the events that led to it. He studied for a time at Oxford, and settled in London as a barrister. He appears to have used his time, for many years, in attending the star chamber, the court of honor, the exchequer chamber, parliament, etc., and in taking shorthand notes of the proceedings. When the Long Parliament met 1640, R. was appointed assistant clerk of the house of commons. He sat in parliament as member for Berwick; was sec. to Sir Thomas Fairfax 1645, and to the lord keeper of the great seal 1677. In 1684, when he had reached the age of 77, he was arrested for debt, and imprisoned in the King's Bench, where he died. In his later years, he became mentally infirm through excess in drink. R.'s *Historical Collections* cover the period 1618–48, and were published in four instalments—1659, 80, 92, and 1701; republished 1721 in 7 vols. The work is of extreme value; but, not being impartial, it requires some caution in the use.

RUSK, n. *rŭsk* [Sp. *rosca*, a roll of bread: origin unknown]: bread or cake sliced and exposed in a slow oven until of a pale-brown color, used as food for infants and invalids; a small light cake.

RUSK, JEREMIAH McLAIN: 1830, June 17—1893, Nov. 21: agriculturist; b. Morgan co., O. He was brought up as a farm hand and stage-driver; removed to Vernon co., Wis., and engaged in farming 1853; became sheriff of the co.; entered the union army as maj. of the 25th Wis. inf. 1862; served to the close of the war and was brevetted brig.gen. 1865; was comptroller of Wis. 1866–70; and was elected member of congress as a republican 1870, 72, and 74, and gov of Wis. 1882, 84, and 86. He declined several public offices tendered him by Pres. Garfield, and in 1889 was appointed by Pres. Harrison sec. of the new dept. (previously bureau) of agriculture.

RUSKIN.

RUSKIN, *rŭs'kĭn*, JOHN, LL.D.: most eloquent and original of writers on art, and a strenuous preacher of righteousness: born 1819, Feb. 8, in London. He was educated in the house of his father, a wealthy wine-merchant, in or near London, till he went, as a gentleman-commoner of Christ-Church, to Oxford. There he gained the Newdigate prize for English poetry—by a poem on *Salsette and Elephanta*—1839, and took his degree 1842. He studied painting under Copley Fielding and Harding. In 1843 appeared vol. i. of his *Modern Painters*, whose primary design was to prove the superiority of modern landscape-painters, especially Turner, to the ancient masters; but in the later vols. (v., the last, pub. 1860), the work expanded into a vast discursive treatise on the principles of art, interspersed with artistic and symbolical descriptions of nature, more elaborate and imaginative than any writer, prose or poetic, had ever before attempted. *Modern Painters* was essentially revolutionary in spirit and aim, many of the most distinguished landscape-painters, both of old and of new schools, being summarily dealt with and condemned; and the work naturally excited the hostility of the conservatives in art. But the unequalled splendor of its style gave it a place in literature; the originality of its views, the lofty conception of the painter's art displayed in it, and the evident justness of at least large portions of the criticism, secured recognition. Disciples soon appeared; and the views of art enunciated by R. gradually made way, and have largely determined the course of later English art. (Vol. i. was pub., much altered, 1846. The last three vols. contained illustrations by the author. A revised and altered ed. appeared 1860–67; another 1873, when the plates of the illustrations were destroyed; a later edition compressed has no plates.) In 1849 appeared *The Seven Lamps of Architecture*; and 1851–53 *The Stones of Venice*, both being efforts to introduce a new and loftier conception of the significance of domestic architecture. They were exquisitely illustrated by the author himself.

About this time, *Pre-Raphaelitism* began to develop itself as a distinctive phase of modern art, and Ruskin warmly espoused its cause in letters, pamphlets, and *Notes on the Acad. exhibitions* (1855–60). Pre-Raphaelitism denotes the style of the chief painters before Raphael, such especially as Giotto and Fra Angelico; but it is most frequently applied to the revival in England of a similar style in the works of the 'Pre-Raphaelite Brotherhood,' comprising Millais, Holman Hunt, and Gabriel Dante Rossetti. Their principles harmonize with those of R., and he became their most earnest and powerful advocate. According to R., 'Pre-Raphaelitism has but one principle, that of uncompromising truth in all that it does, obtained by working everything, down to the most minute detail, from nature and nature only. Or, when imagination is necessarily trusted to, by conceiving a fact as it really was

likely to have happened, rather than as it most prettily might have happened. Every Pre-Raphaelite background is painted to the last touch in the open air, from the thing itself. Even a Pre-Raphaelite figure, however studied in expression, is a true portrait of some living person. Every minute accessory is painted in the same manner.' The earnestness of the men of the 13th and 14th c., and their deep religious feeling, as also their true imaginative power, further commended their system of painting.

In 1854 he published four admirable and suggestive *Lectures on Architecture and Painting*; and 1858 two *Lectures on the Political Economy of Art*. The *Notes on the Construction of Sheepfolds* (1851), dealing with the discipline of the church, illustrates his ingenuity in devising picturesque titles that suggest no notion of the subject treated. *The King of the Golden River*, a fairy story, was published 1851; and 1854 *The Two Paths*, lectures on art and its application to decoration and manufacture. The *Elements of Drawing* and the *Elements of Perspective* appeared 1857 and 59. The *Crown of Wild Olive* is a series of four essays on work, traffic, war, and the future of England; *Sesame and Lilies*, lectures on good literature. *The Queen of the Air* is a study of the Greek myths of cloud and storm; *Ethics of the Dust*, lectures on crystallization; *Ariadne Florentina*, on wood and metal engraving; *Aratra Pentelici*, on the elements of sculpture. The *Laws of Fesolè* are the elements of painting and drawing; *Frondes Agrestes* are readings from *Modern Painters*; *Giotto and His Works*, *Love's Meinie*, and *Deucalion* are other publications. *Munera Pulveris* contains the elements of political economy according to R.; while *Unto this Last* attacks the current doctrines of that 'dismal science.' *Val d'Arno* contains lectures on the art of the 13th c. in Pisa and Florence; another course deals with *Art in England*. *Mornings in Florence* are studies of a Christian art for English travellers; and *St. Mark's Rest* is on the history of Venice. *The Eagle's Nest* discusses the relation of natural science to art; *Time and Tide* are letters to a working-man of Sunderland. *Arrows of the Chace* is a selection of his letters; *On the Old Road* is the title of a republication of his miscellaneous pamphlets, articles, and essays contributed to various reviews and magazines, containing famous utterances on Samuel Prout, the History of Christian Art, the Lord's Prayer, the 'Cestus of Aglaia,' etc. An early volume of poems, issued for private circulation, became a much-sought-after bibliographical treasure. *Fors Clavigera* appeared as a sort of periodical at irregular intervals for several years, in the form of letters to the workmen and laborers of Great Britain, on a great variety of topics. *Proserpina*, published in the same way, gives studies of wayside flowers. In 1885 R. began to publish a copious autobiographical work, *Præterita*, whose successive chapters appeared at intervals in pamphlets. All R.'s books are now with-

RUSSELL.

RUSSELL, *rüs'el*, BENJAMIN: 1761, Sep. 13—1845, Jan. 4; b. Boston: journalist. He began learning the printer's trade, but left to enter the revolutionary army, and while a soldier sent war-letters to the *Worcester Spy*. In 1784 he established in Boston the *Columbian Centinel*, semi-weekly, which became a newspaper of great influence; and 1795–1830 published the *Gazette*, in the interest of the federalists, retaining the editorship of the *Centinel* till 1828. He represented Boston in the general court 24 years, and was a member of the state senate and of the executive council many years.

RUSSELL, DAVID ALLAN: 1820, Dec. 10—1864, Sep. 19; b. Salem, N. Y.: soldier. He graduated at the U. S. Milit. Acad. 1845; served through the Mexican war and was brevetted 1st lieut. for gallantry; promoted capt. 1854; appointed col. 7th Mass. vols. 1862, Jan.; brevetted lieut.col. U. S. A., July; promoted maj. 8th U. S. inf. Aug., and brig.gen. vols. Nov.; commanded a brigade at Fredericksburg, Chancellorsville, and Gettysburg, and a division in the Richmond campaign 1864; was in all the battles from the Wilderness to Petersburg; was called to the defense of Washington against the Confederate raid under Gen. Early; and in the subsequent pursuit of Early was killed at the head of his column in the battle of Opequan.

RUSSELL, HOUSE OF: ancient noble family in England. The first dukedom of Bedford expired in the person of the great regent of France (in the time of Henry VI.), with whom the present dukes are unconnected by affinity: see BEDFORD, JOHN PLANTAGENET, Duke of. In Wiffin's *Memoir of the House of Russell*, the family is traced back to a Scandinavian King Olaf, and his descendant, a jarl who settled in Normandy and became possessor of the castle of Rozel, near Caen.—Hugh de Rozel and his brother accompanied William in his invasion of England; and from the younger brother descended Sir James Rozel, or Russell (as it had then begun to be called), gov. of Corfe Castle 1221, and Sir W. Russell, who represented Southampton in the first parliament of Edward II. From the latter R. directly descended Sir John R., one of the most valiant soldiers of the age of chivalry. His son, Sir John R., was speaker of the house of commons in the time of Henry VI. The high fortune and eminence of the House of R. date from his grandson, JOHN R., one of the most accomplished gentlemen of his time, who, 1538, was elevated to the peerage, under the title 'Lord Russell, Baron Russell of Cheyneys, county Buckingham.' He became Earl of Bedford 1550. His son, the second earl, was a person of eminence in Queen Elizabeth's reign. The earldom became a dukedom under William, fifth earl, who fought for the parliament at Edgehill, and for the king at Newbury, and was created duke 1694.—A notable member of the family was EDWARD R., who was bred to the sea, and was groom of the bedchamber to the Duke of York,

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afterward James II.; but immediately after Lord William R.'s judicial murder, he retired from court. Strenuously supporting the Revolution, he obtained high naval commands from William III., and distinguished himself as one of the naval heroes of the period, particularly by his victory over the French fleet at La Hogue 1692. His cousin was Lord William Russell (q.v.).

JOHN R., fourth Duke of Bedford (d. 1771), was first lord of the admiralty 1744-48; became lord. lieut. of Ireland 1756; was accredited minister plenipotentiary to the court of France 1762, and signed at Fontainebleau the preliminaries of peace with France and Spain. He was pres. of the council in the administration formed by Grenville 1763. His concern with public affairs covered the term between the fall of the administrations of Walpole and of Chatham; and 1744-48 he shared with Pelham the premier, and the Duke of Newcastle, the substantial power of the govt. His correspondence, preserved at Woburn Abbey, and given to the world by Earl Russell, contains authentic materials for illustration of the political history of England 1744-70. The introduction to vol. i. contains a brief historical sketch by him.—FRANCIS R., fifth Duke of Bedford (1765-1802, grandson of the fourth duke), was a man for whom his friends had an attachment amounting to enthusiasm. He was a steady friend of popular freedom. He died unmarried. JOHN R., sixth Duke of Bedford (1766-1839, Oct. 20, bro., of the fifth duke), was father of Earl John Russell (q.v.). —FRANCIS R., seventh Duke of Bedford (d. 1861, eldest son of the sixth duke), declined office, but invariably supported the measures of the whig governments, and had great influence in the whig counsels. He was an enthusiastic patron of the turf, and his stud at Newmarket was famous. In his later years, he busied himself in the comfort of the tenantry and the laborers on his extensive estates.—WILLIAM R., eighth Duke of Bedford (1809-72, only son of the seventh duke), was retired in his habits, and took no active part in political affairs.—FRANCIS R., ninth Duke of Bedford (b. 1819, eldest son of the late Major-gen. Lord George R., and cousin of the eighth duke).—The heir-apparent to the dukedom is his son George, Marquis of Tavistock. The dukes of Bedford have a magnificent mansion and park at Woburn, near Bedford.

RUSSELL, JOHN HENRY: naval officer: b. Frederick, Md., 1827, July 4. He entered the U. S. navy as midshipman 1841; became passed midshipman 1847, master and lieut. 1855, commander 1867, capt. 1874, commodore 1883, rear-admiral 1886, Mar. 4; and was placed on the retired list 1886, Aug. 27. In 1861, Sep., he commanded a boat expedition that cut out the Confederate privateer *Judah*, at Pensacola, for which he was thanked by the navy dept., Pres. Lincoln, and his native state.

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RUSSELL, JOHN RUSSELL, Earl, K.G.: English minister and statesman: 1792, Aug. 18–1878, May 28; b. Hertford street, Mayfair, London; third son of John, sixth Duke of Bedford. He was, for a short time, at Westminster School, whence he was sent to Edinburgh, then preferred to the English universities by the great whig families. Here he studied under the care of Prof. Dugald Stewart; and here first, at the meetings of the Speculative Soc., he exercised his powers of debate. In 1821 appeared his *History of the British Constitution*, and 1824 *Memoirs of the Affairs of Europe from the Peace of Utrecht*. In more recent years he compiled from the family archives the *Correspondence of John, fourth Duke of Bedford*, which throws much light on the secret history of the early part of George III.'s reign; *Life, Diary, and Letters of Thomas Moore*, in pursuance of a promise made to the poet several years before; *Correspondence of Charles James Fox*, and *Life and Times* of that great whig statesman.—In 1813 he was elected for the family borough of Tavistock. He made his first motion in favor of parliamentary reform in 1819, and continued for 12 years to bring the subject almost annually before the lower house; he was also the strenuous advocate of the repeal of the Test and Corporation Acts, Rom. Cath. Emancipation, and other measures of civil and religious liberty. In 1828 he carried by a large majority his motion for the repeal of the Test and Corporation Acts. In 1829 he supported the Rom. Cath. Emancipation Bill. In 1830 R. was appointed to the lucrative office of paymaster of the forces, and was one of the four members of the govt. to whom Earl Grey intrusted the task of framing the first Reform Bill; and the imperishable honor devolved upon R. (1831, Mar. 1) of proposing the bill, which became a law 1832, June 4, and which saved the country from menacing revolution (see REFORM, PARLIAMENTARY). R. left office with the Melbourne govt. 1834, Nov. In 1835 he carried a resolution in committee for appropriating any surplus which might remain, after fully providing for the spiritual wants of the members of the Irish Church, to the general education of all classes of Christians. The report of the committee having been affirmed by the whole house, the govt. of Sir Robert Peel was dissolved, and that of Lord Melbourne restored, and R. became home sec., with a seat in the cabinet. He proposed and carried bills for municipal reform, for commutation of tithes, for general registration of marriages, births, and deaths, for amendment of the marriage laws, which enabled dissenters to be married in their own chapels, and for English church reform. In 1837, he carried a series of bills by which capital punishment was finally removed from forgery and all offenses except seven.

In 1841 R. and his colleagues made way for the administration of Peel. 1845, Nov., R. wrote a letter from Edinburgh to the electors of the City of London, who had made him their representative in parliament, an-

nouncing his conversion to the total and immediate repeal of the corn laws. This letter led to the resignation of the Peel cabinet; and R. was commissioned by the queen (1845, Dec. 11) to form an administration, which at first he failed to do through the antipathy of Earl Grey to Lord Palmerston; and Sir Robert Peel, being recalled to power, had the honor of carrying the repeal of the corn laws. Peel, however, soon found it necessary to resign; and R. became nominally what he had been really during the greater part of the Melbourne administration—prime minister. The papal bull, parcelling England into dioceses, extorted from R. an indignant protest. R.'s advice to the queen to dismiss her foreign sec. and his own ancient colleague, Lord Palmerston, for communicating, without consultation with his colleagues, his approval of the French *coup d'état*, precipitated the downfall of the R. administration; and 1852, Feb., R. ceased to be first lord of the treasury. In the cabinet of the Earl of Aberdeen, R. filled the post of foreign sec., with the leadership of the house of commons. As commissioner to the Congress of Vienna, he incurred so much unpopularity by recommending terms of peace, and a plan of counterpoise suggested by Austria, that he retired from the ministry 1855, July. In Lord Palmerston's second administration R. became again foreign sec., which office he held until 1865. He threw the national influence into the scale of Italian unity and independence; uttered remonstrances against the annexation of Savoy and Nice by France, which gave great offense to the govt. of Emperor Louis Napoleon; and wrote dispatches expressive of the indignation of the British govt. at the despotic acts of Russia in Poland; but he incurred reproaches from the Poles and their sympathizers for withdrawing from the Austrian and French alliance when war with Russia appeared imminent. R. was always prominent in promoting the education of the people; and, with the assistance of Lord Lansdowne, laid the foundation of the present system of national education. He brought forward for many years a measure admitting the Jews to parliament—an object gained finally 1858. In the public mind, R. is remembered as the steady and untiring advocate of parliamentary reform. In 1861 he was called to the upper house, and exchanged the courtesy-title of 'Lord John' for that of Earl Russell. On the death of Lord Palmerston 1865, Earl R. became prime minister the second time. In 1866 he with Gladstone introduced a reform bill which was rejected, and his ministry resigned. Thenceforward Earl R. remained an unofficial member of the liberal party in the house of lords.

RUSSELL, JOHN SCOTT: 1808–1882, June 8; b. Vale of Clyde, Scotland: naval architect. He was educated in the universities of Edinburgh, St. Andrews, and Glasgow; settled in Edinburgh and engaged in building river and canal steamboats; became manager of the

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large ship-building yard at Greenock, Scotland; received the gold medal of the Royal Soc. of Edinburgh for his introduction of the wave system in steamship construction; and 1844 removed to London and began building the largest class of steamships. He built the *Great Eastern*; was an original promoter of the London Exhibition 1851; was a founder and became vice-pres. of the Institution of Naval Architects; was vice-pres. of the Institution of Civil Engineers and member of several scientific bodies; and published several treatises on naval architecture and technical education.

RUSSELL, WILLIAM: 1798, Apr. 28—1873, May 17; b. Glasgow: educator. He was educated in the Univ. of Glasgow; came to the United States and became principal of an acad. in Savannah 1819; was instructor in the New Haven grammar school 1822–28; taught classes in elocution in Harvard, Boston, Andover, and Germantown; edited *The American Journal of Education* 1826–29; established a teachers' institute in N. H. 1840; removed it to Lancaster, Mass., 1853; and spent the remainder of his life lecturing before teachers. He published several text-books.

RUSSELL, WILLIAM, Lord: one of the noblest martyrs of English liberty: 1639, Sep. 29—1683, July 21; son of William, fifth earl. He was educated at Cambridge; passed some years at Augsburg and other places on the continent, and returned to England at the Restoration. 1678–9 he was returned to parliament for the county Bedford. His first public act was worthy of his subsequent career: he inveighed against the corruption of the Cabal, the influence of France, the dishonorable commencement of the war with Holland, and the fraud practiced on the bankers. He was ever afterward conspicuous wherever the evil designs of the court could be traversed, or the cause of constitutional liberty befriended. He appeared publicly in the king's bench at Westminster Hall 1680, June 16, and presented the Duke of York as a recusant. He also carried up to the house of lords the bill of exclusion against the duke, at the head of more than 200 members of the commons. This bill, setting forth that the Duke of York was a Papist, declared him incapable of succeeding to the crown (see ROMAN CATHOLIC EMANCIPATION ACTS). The king and the duke determined to be revenged on R. and the other leaders of the whig party. Charged as participators in the Rye-house Plot (q.v.), Lord R., the Earl of Essex, and Algernon Sidney were arrested. R. was arraigned 1683, July 13, at the Old Bailey, for high treason. Infamous witnesses easily satisfied a packed jury. As they were about to withdraw, the prisoner said: 'I call Heaven and earth to witness that I never had a design against the king's life.' But the jury pronounced the fiat that condemned R. to the block, and the sentence of death for high treason was forthwith pronounced. Some even of the tory ministry ventured

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to plead in his favor, but in vain. To satisfy his aged father, and at the earnest request of his afflicted wife, R. himself petitioned the king. There is reason to believe that Charles was disposed to relent, but that the Duke of York insisted upon the prisoner's death. The simple relation of his last hours, with their saintly calm and their heroic dignity, by Bp. Burnet, his intimate friend and companion, is justly considered one of the most pathetic passages in history. This murder of R., perpetrated for the most unconstitutional end by the most unconstitutional means, followed by that of Sidney, rendered the despotism of the Stuarts odious, and led, in the next reign, to the overthrow of the family. R. left a name to be remembered and revered wherever truth has a sanctuary, or liberty a shrine.—His attainder was annulled after the revolution. His eldest son was Wriothsley, second Duke of Bedford.

RUSSELL, WILLIAM CLARK : English novelist : 1844, Feb. 24— — ; b. New York ; son of Henry R., author of *Cheer, Boys, Cheer*. He received education at Winchester, Eng., and in France ; went to sea in the Eng. merchant service when about 14 years of age ; voyaged to Australia, India, and China, and after about 7 years returned to England and began to write stories of the sea, his writings at once finding popular favor. The first was *John Holdsworth, Chief Mate* (1874), followed by *The Wreck of the Grosvenor* ; *The Little Loo* ; *A Sailor's Sweetheart* ; *An Ocean Free Lance* ; *A Sea Queen* ; *The Lady Maud* ; *Jack's Courtship* ; *The Strange Voyage* ; *The Death-Ship* ; *A Frozen Pirate* ; *Marooned* ; *An Ocean Tragedy* ; *My Shipmate Louise*, etc. He was a member of the staff of the *London Daily Telegraph*, his connection ceasing 1887.

RUSSELL, WILLIAM EUSTIS : lawyer : 1857, Jan. 6— 1896, July 16 ; b. Cambridge, Mass. He graduated at Harvard 1877, at the Boston Univ. Law School 1879, and was admitted to the bar 1880. After serving his native city in various public offices, he was elected gov. (dem.) of Mass. 1890, and again 1891, and 92. His success in these elections was remarkable as involving the overturning a republican majority long accounted sure. In 1894 he was appointed by Pres. Cleveland a member of the board of Indian Commissioners. His death was greatly lamented.

RUSSELL, WILLIAM HOWARD, LL.D. : journalist : b. Lilyvale, Ireland, 1821, Mar. 28. He was educated privately and at Trinity College, Dublin ; received a staff appointment on the *London Times* 1843 ; was called to the bar 1850 ; and while in successful practice was induced to accompany the British troops to the seat of war with Russia, as special correspondent of the *Times*. He was an eye-witness of the movements immediately preceding the beginning of the Crimean war, as well as of the decisive events in that struggle ; and wrote graphic and thrilling letters to the *Times* on the historic scenes about him. In 1856 he described the coronation of the

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Czar Alexander II. in Moscow; 1857 took part in the movement for suppressing the mutiny in India, and received the Indian war medal with the Lucknow clasp; 1860 established in London the *Army and Navy Gazette*, of which he is still owner and editor; 1861 came to the United States as war correspondent of the *Times*, and described the first battle of Bull Run; 1866 was attached to the Austrian army in the war with Prussia; 1870 accompanied the staff of the crown-prince of Prussia in the war with France; 1875-6 was honorary private sec. to the Prince of Wales, whom he accompanied to India, Egypt, Constantinople, the Crimea, etc.; and 1879 was with Lord Wolseley in his s. African campaign. He has received numerous medals and decorations for his services as war correspondent; and has published *Letters from the Crimea* (1855-6); *Diary in India*; *My Diary North and South*; *Canada: Its Defences*; *Rifle Clubs and Volunteer Corps*; *The Adventures of Dr. Brady*; *My Diary in the East*; etc. He was knighted in 1895.

RUSSELL OF KILLOWEN, CHARLES, Lord: English jurist: 1833 — — —; b. near Newry, County Down, Ireland; descended from Rom. Cath. ancestors, and the only one of five brothers who did not enter the service of the church. After studying for a while in the office of an attorney at Newry, he went to London (1851), where he gained a livelihood by press-reporting in the house of commons. He was called to the bar at Lincoln's Inn 1859, and gained prominence as an advocate. In 1872 he was appointed a queen's counsel; in 1880 he entered parliament, and became solicitor-gen. and atty. gen. He warmly advocated the cause of Irish home-rule. He was engaged as an advocate in the Colin Campbell divorce case, the Crawford divorce case, the Tranby Croft baccarat scandal case, and defended Mrs. Maybrick. He was knighted 1886; was appointed a Lord of Appeal in ordinary with a life peerage 1894, and in the same year was made Lord Chief Justice of England. He presided at the trial of Dr. Jameson for raiding the Transvaal. He visited the U. S. 1896, and delivered an address on international arbitration before the American bar association, at Saratoga Springs, N. Y.; and was British arbitrator on the Venezuelan Boundary Arbitration Tribunal 1899.

RUSSET, a. *rŭs'sĕt* [OF. *rousset*, russet: F. *roux*; It. *rosso*—from L. *russus*, red]: of a reddish-brown color; home-spun; coarse; rustic: N. a country dress: V. to give to anything a reddish brown color. RUS'SETING, imp. RUS'SETED, pp. RUS'SETY, a. *-sĕt-ĭ*, of a russet color. RUS'SET, or RUS'SETING, n. a variety of apple having a rough skin and russet color.

RUSSIA.

RUSSIA, *rŭsh'a* or *rŭsh'ŭ a*, **EMPIRE OF** : dominion and territory extending over a large portion of the northern regions of the globe ; including eastern Europe, all northern Asia, and a part of central Asia ; lat. $38^{\circ} 30'$ — 78° n., long. $17^{\circ} 19'$ e.— 190° e. (170° w.). The empire is bounded n. by the Arctic ocean ; e. by the North Pacific ocean and the Chinese Empire ; s. by the Black sea, Turkey in Asia, the Caspian sea, Persia, Afghanistan, Turkestan, and the Chinese Empire ; w. by Roumania, Austria, Prussia, the Baltic sea, and Sweden. Its territory is more than twice as large as all Europe ; and its area is one-sixth of the land surface of the globe, and nearly one twenty-fourth of the land superficies of the planet. Russian America, the n.w. portion of N. America which formerly belonged to R., was sold to the United States 1867 : see **ALASKA**.

The southern frontier is indefinite, having never remained unaltered for so long as 20 years, and its southward advance has continued till the present time in Asia Minor, and in Asia beyond the Caspian toward the Pamir plateau. Bokhara and Khiva (112,000 sq. m., pop. 3,200,000), though recognized as vassal khanates, are mere dependencies of Russia. The eastern portion of the southern boundary, though less vague, is only approximately defined. On the western frontier also a gradual advance of Russian influence is evident in the direction of eastern Mongolia. Russia has no oceanic islands, having abandoned those that were included in the empire in the 18th c. : the Russian islands are mere appendages of Russian mainland—such as the Aland archipelago, etc., in the Baltic sea ; Nova Zembla and the New Siberian archipelago in the Arctic sea ; the Shantar islands and Saghalin in the Sea of Okhotsk. The Aleutian Isles were ceded with Alaska to the United States 1867, and the Kurile islands to Japan 1874.

The vast continental territory, lying almost entirely in the cold or the temperate zones, is in most of its extent sparsely peopled—having about one-fourteenth the pop. of the globe. It comprises the following divisions—with pop. in 1897: (1) *European Russia*—Provinces 1,902,202 sq. m., pop. 94,215,415—Poland, 49,159 sq. m., pop. 9,455,943 ; Finland, 144,255 sq. m., pop. 2,595,778 ; total of European Russia, 2,095,616 sq. m., pop. 106,264,136. (2) *Russia in Asia*.—Caucasus, 86,661 sq. m., pop. 3,732,556 ; Central Asia, 1,548,825 sq. m., pop. 7,721,684 ; Siberia, 4,833,496 sq. m., pop. 5,727,090 ; total of Asiatic Russia 6,564,778 sq. m., pop. 22,697,469.—Grand total, Russian empire, about 8,660,395 sq. m., pop. about 129,004,514.

The following table exhibits the details of the census which was taken over the whole of the Empire in 1897, with the exception of the Grand Duchy of Finland—concerning the area and population of the various political and geographical divisions of the Empire of Russia:—

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AREA AND POPULATION OF RUSSIAN EMPIRE.

Province.	Area: English square miles.	Pop.	Density per square mile.
1. EUROPEAN RUSSIA:			
Archangelsk	331,640	347,589	1
Astrakhan	91,327	994,775	11
Bessarabia	17,619	1,933,436	113
Chernigoff	20,233	2,321,900	115
Courland	13,535	672,634	64
Don, Region of	63,532	2,575,818	41
Ekaterinoslaf	24,478	2,112,651	86
Esthonia	7,818	413,724	54
Grodno	14,931	1,617,859	109
Kaluga	11,942	1,185,726	99
Kazan	24,601	2,291,058	89
Kieff	19,691	3,576,125	181
Kostroma	32,490	1,420,228	44
Kovno	15,692	1,549,444	100
Kursk	17,937	2,396,577	134
Kharkoff	21,041	2,509,911	119
Kherson	27,523	2,732,832	100
Livonia	18,158	1,300,640	74
Minsk	35,293	2,156,123	61
Moghilev	18,551	1,708,041	92
Moscow	12,859	2,433,356	189
Nijni-Novgorod	19,797	1,600,304	81
Novgorod	47,236	1,392,933	33
Olonetz	57,439	366,715	7
Orel	18,042	2,054,749	114
Orenburg	73,816	1,609,388	22
Penza	14,997	1,491,215	99
Perm	128,211	3,003,208	24
Podolia	16,224	3,031,513	187
Poltava	19,265	2,794,727	145
Pskoff	17,069	1,136,540	68
Ryazan	16,255	1,827,539	113
St. Petersburg	20,760	2,107,691	123
Samara	58,321	2,763,478	46
Saratoff	32,624	2,419,884	74
Simbirsk	19,110	1,549,461	81
Smolensk	21,638	1,551,068	72
Tamboff	25,710	2,715,453	106
Taurida	24,497	1,443,566	62
Tula	11,954	1,432,743	120
Tver	25,225	1,812,825	73
Ufa	47,112	2,220,497	47
Vilna	16,421	1,591,912	98
Vitebsk	17,440	1,502,916	89
Vladimir	18,864	1,570,733	84
Volhynia	27,743	2,997,902	109
Vologda	155,498	1,365,587	9
Voronej	25,443	2,546,255	109
Vyatka	59,329	3,082,788	52
Yaroslav	13,751	1,072,478	78
Sea of Azov	14,520	.....	.....
Total, Russian Provinces	1,902,202	94,215,415	51
2. POLAND:			
Kalisz	4,392	846,719	194
Kielce	3,897	763,746	196
Lomja	4,667	585,781	144
Lublin	6,501	1,159,463	177
Piotrkow	4,729	1,409,044	297
Plock	4,200	556,877	153
Radom	4,769	820,363	171
Siedlce	5,535	775,316	140
Suwalki	4,846	604,945	127

RUSSIA.

AREA AND POPULATION OF RUSSIAN EMPIRE—*Continued*

Province. .	Area: English square miles.	Pop.	Density per square mile.
Warsaw	5,623	1,933,689	286
Total, Poland.....	49,159	9,455,943	193
3. GRAND DUCHY OF FINLAND:			
Abo-Björneborg.....	9,333	430,194	47
Kuopio	16,499	305,166	22
Nyland	4,584	276,335	61
St. Michel.....	8,819	186,478	28
Tavastehus	8,834	285,281	40
Uleaborg	63,957	268,226	4
Viborg.....	13,530	394,412	33
Vasa.....	16,105	446,772	30
Lake Ladoga.....	3,094	.....	.....
Finland.....	144,255	2,592,778	20
Total European Russia.....	2,095,616	106,264,136	51
4. RUSSIA IN ASIA:			
Kuban.....	36,441	1,922,773	54
Stavropol	23,398	876,298	38
Terek.....	26,822	933,485	35
Northern Caucasia	86,661	3,732,556	43
Baku	15,095	789,659	55
Black Sea.....	2,836	54,228	....
Daghestan.....	11,332	586,636	58
Elizabethpol.....	16,721	871,557	52
Erivan.....	10,075	804,757	101
Kars.....	7,308	292,498	43
Kutais	13,968	1,075,861	54
Tiflis.....	15,306	1,040,943	62
Zakataly.....	1,541		
Trans-Caucasia.....	94,182	5,516,139	64
Caucasus	180,843	9,248,695	54
Akmolinsk.....	229,609	678,857	3
Semipalatinsk.....	184,631	685,197	4
Turgai.....	176,219	453,123	3
Uralsk.....	139,168	644,001	4
Lake Aral.....	26,166	.....	.....
Kirghiz Steppe.....	755,793	2,461,278	3
Samarcand	26,627	857,847	30
Ferganah.....	35,654	1,560,411	43
Semirechensk	152,280	990,107	7
Syr-Daria.....	194,853	1,479,848	7
Turkestan.....	409,414	4,888,183	12
Trans-Caspian.....	214,237	372,193	2
Caspian Sea.....	169,381	.....	.....
Total Central Asia dominions.....	1,548,825	7,721,684	5
Tobolsk.....	539,659	1,438,484	3
Tomsk.....	331,159	1,929,092	6
Western Siberia	870,818	3,367,576	4

RUSSIA.

AREA AND POPULATION OF RUSSIAN EMPIRE—*Continued*

Province.	Area: English square miles.	Pop.	Density per square mile
Irkutsk.....	287,061	506,517	2
Transbaikalia.....	236,868	664,071	3
Yakutsk.....	1,533,397	261,731	2
Yeniseisk.....	987,186	559,902	1
Eastern Siberia.....	3,044,512	1,992,221	7
Amur.....	172,848	118,570	9
Primorskaya	715,982	220,557	3
Amur Region, about	888,880	339,127	3
Sakhalin.....	29,336	28,166	1
Total, Siberia.....	4,833,496	5,727,090	1
Total, Asiatic dominions	6,564,778	11,697,469	4
Russians in Finland, Bokhara, Khiva and in the Navy abroad.....	.....	42,909	....
Grand Total, Russian Empire.....	8,660,395	129,004,514	15

The Russian Seaboard.—The northern shores of the Russian territories are deeply indented by the Arctic Ocean. The White Sea (q.v.), an immense arm of the Arctic Ocean, penetrates 350 m. into the mainland, and is sub-divided into the gulfs of Onega and Archangel or Dwina. The other chief inlets on the n. of R. are the Kara Sea and the gulfs of Obi and Yenisei. W. from Nova Zemla (usually, but less correctly, Zembla), the Arctic Ocean is navigable for three months of the year; e. from that island, the sea, even at the mildest season, is encumbered with floating icebergs. The chief islands in this ocean are the Kolguef, Waigatz, Nova Zemla, and Spitzbergen Isles. The e. shores of R. are washed by the Pacific, sub-divided into the Behring, Okhotsk, and Japan seas; and the islands belonging to R. in these seas are Sakhalin and the northern Kuriles. On the s. are the Black Sea (q.v.) and the Sea of Azov (q.v.), the latter communicating with the former by the Strait of Kertch, and so shallow that it is navigable for small craft only. Of the Caspian Sea, R. commands the whole, except the s. shore, which belongs to Persia. The n. and e. banks of the Caspian are seats of the chief fisheries of the empire. On the n.w. of R. are the Baltic Sea, with the gulfs of Riga, Finland, and Bothnia; and in these waters, the islands of Aland, Esel, and Dago belong to the empire. The freezing of the water near the shores of the Baltic

prevents its navigation during five months of the year, though a few ports are accessible through the whole year. From its easy communication with the most fertile governments of the interior, and as sustaining chiefly the commerce of R. with other parts of Europe and with America, the Baltic is of the highest commercial importance.

Surface, Hydrography, and Soil.—European R. consists of a vast plain bordered with mountains. On the e. are the Ural Mountains (q.v.), a broad range of no great elevation, ending on the n. on the shores of the Arctic Ocean, and on the s. in a range of elevated plains on the left bank of the Volga. On the s.e. of the great plain is the lofty range of the Caucasus (q.v.), crossed by the Pass of Derbend and the so-called Military Georgian Road. The Crimean Mountains, continuation of the Caucasian chain, rise 5,000 ft. in their highest summit. The districts in s.w. R., between the Vistula and the Pruth, are covered by hilly ranges from the Carpathian Mountains (q.v.), in Poland, known as the Sandomir Mountains. The Finland Mountains, on the n.w., are ranges of granite rocks, embracing numerous lakes, and not higher than 600 ft. The Alaunsky table-land, which connects itself with the Ural Mountains by a chain of hills, lat. about 62° n., is the key to the configuration of European Russia. From this table-land of about 1,200 ft. elevation, the country slopes gradually in four directions—n. to the Arctic, n.w. to the Baltic, s. to the Black, and s.e. to the Caspian seas. The sloping country n. of the Alaunsky heights is called, from its e. and w. limits, the Ural-Baltic table-land; that s. of the same dividing heights is called, for like reason, the Ural-Carpathian table-land. The Alaunsky heights form the great watershed, and regulate the course of all the great Russian rivers. To the n. they throw off the Petchora, the N. Dwina, and the Onega; to the s. the Dniester, Bug, Dnieper, Don, and Kouban; to the s.e. the Volga, with its great affluents, the Oka and Kama. The W. Dwina, the Niemen, and the Vistula fall into the Baltic Sea. For the important rivers of R., see their several titles. At the foot of the n.w. slope from the central terrace is the lake-country of European R., and the great lakes (see separate titles) are Ladoga, Onega, Ilmen, Peipus, and Pskov.—The plain of European R. naturally divides itself into three tracts or zones, differing in nature and quality of soil. The n. zone extends between the Arctic Ocean and the Ural-Baltic table-land, the middle zone between the Ural-Baltic and the Ural-Carpathian tablelands, and the s. zone between the Ural-Carpathian tableland and the Black and Caspian seas. The soil of the n. zone is marshy, and the climate inclement. In its middle part, between the rivers Onega and Mezen, especially along the banks of the N. Dwina, are forests of fir-wood and large tracts of fodder-grass. Toward the e. of this tract, the woods disappear, and vast marshes, frozen the greater part of the year, cover the country.

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The middle zone reaches s.w. to the govt. of Volhynia and s. Poland, and n.e. to the Ural Mountains. In the w. it consists of an extensive hollow, covered with woods and with marshes, the chief of which are those of Pinsk (q.v.). In the middle of this zone, the soil is partly heavy and covered with mold, and toward the n. sandy. Beyond the Oka, luxuriant meadows abound; and on the e., beyond the Volga, this tract forms an extensive valley, covered with a thick layer of mold, abounding in woods, and rising into hills in the vicinity of the Ural range. The s. zone consists of steppes extending along the shores of the Black and Caspian seas. The steppes of the Black Sea have mostly a moldy soil, covered with grass; but in the s.e. shifting sands and salt-marshes predominate. The steppes of the Caspian consist of sand, salt-marshes, and salt-lakes—the Elton Lake, yielding nearly 4,000,000 poods (about 1,290,000 hundredweights) of salt annually, being the most remarkable.

Constitution and Administration.—The govt. is an unlimited monarchy, whose head is the tzar or emperor (written commonly *czar*), who unites in himself every authority and power—that is to say, is the head of the military, the legislative, and the judicial systems, and is also the ecclesiastical chief of the orthodox Greek Church. The order of succession is by primogeniture, hereditary in heirs-male, and in females in default of males. The expenses of the imperial house amount to about \$7,500,000 annually; the private property of the imperial family, yielding about \$5,000,000 annually, is excluded from the budget. Every military or civil officer of the crown is required to take an oath of allegiance. The Council of State is the highest branch or board of the executive, and comprehends the legislative, judicial, and administrative powers. The pres. (some member of the imperial family) and members—among whom are always included the ministers of the crown—are appointed by the emperor. A sec. of state, whose duty it is to report the opinion of the council to the emperor, is attached to this body. The estimates of expenditure and income, and every proposition introducing an addition to, or a modification of, the laws, is considered and revised by this council, which is divided into three sections: 1. Law; 2. Civil and Ecclesiastical; 3. Economy and Finance. The main function of the council is in superintending the general administration, and watching over the execution of the laws: it has only a consultative voice; the decision rests with the emperor. The second of the great boards of govt. is the Senate, whose functions are partly deliberative and partly executive. It is the high court of justice for the empire, controlling all inferior tribunals; and besides its legal duties, it examines into the state of the public revenue and expenditure. The senate is divided into seven committees or departments, of which five sit at St. Petersburg and two at Moscow. The third college is the Holy Synod,

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superintending the religious affairs of the empire: its decisions have no force till approved by the emperor. The fourth great board of govt. is the Committee of Ministers, the highest administrative body: it is in nine departments, respectively managing the Court; Foreign Affairs; War; the Navy; the Interior; Public Instruction; Finances; Crown Domains; Public Works: also it has a general board of control. All these great boards centre in the private cabinet of the empire. Except the departments of foreign affairs and the imperial court, all these branches of the central administration are represented in the provinces. European R. is divided into 50 provinces (60, if we include the 10 Polish govts., now wholly incorporated with Russia), over each of which is a gov., appointed by the emperor. Some provinces, though administered by governors, are united under superintendence of a gov.gen. This arrangement is necessary because of the immense extent of the empire; and the gov.-generalships are generally remote frontier regions. Since 1862 some reforms have been effected in various branches of the govt. Reforms in municipal and rural administration of the provinces have given increase of self-government. A new legal system, including oral testimony, trial by jury, and publicity of courts, was introduced 1864. By the Russian law, capital punishments are inflicted only for high treason. The severest punishments inflicted for violations of the law (see **KNOUT**) are labor in the galleys, in the public works, deportation to the mines of Siberia, etc. The audacity in recent years of the revolutionary party known as Nihilists (see **NIHILISM**) has caused increased rigor and frequency of political punishment. Repeated and fatal attempts on the life of high officials, and the acquittal by a jury of one of the most notable assassins, led 1878 to withdrawal of trials for political offenses from juries: such trials are now conducted by courts-martial.

Distinctive Rank of Classes.—The nobility occupy the highest place in the social scale, have many special privileges, e.g., freedom from poll-tax, and form in every province a separate body, headed by a marshal, chosen by and from themselves. Till 1871 they were also free from the conscription. Functionaries, officials, artists, and clergy possess almost as many privileges as the nobility. In 1868, by an important law, the clerical character was declared no longer hereditary, and the sons of the secular clergy, hitherto bound to some ecclesiastic or monastic service, were set free to choose their own career. The next class is that of the merchants. The burghers and peasants constitute the lowest class, and are subject to claims of service and to personal taxation. Each class has, to a certain extent, the right of self-administration in its own affairs: each apportions its taxes, and chooses some of its own functionaries. The recent emancipation gave freedom to 20,000,000 peasants or serfs, who, prior to 1861, being governed exclusively by their owners, had very limited civil rights. Com-

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munal govt. is the fundamental principle of all the rights of the peasant class. In general, the lands allotted to the peasants are not their individual property, but belong to the commune, and are shared among all its members.

National Debt.—The national debt must be regarded as divided into two parts, one representing loans made abroad; the other, loans made at home. Its total amount was given for 1890 (*U. S. Census Bulletin* No. 64, in which roubles of all kinds were computed as averaging 77 cents each) at \$3,491,018,074, less sinking fund. Several recent loans have been raised to tide over the terrible financial stress produced by the late war with Turkey, the expenditure for which has been officially stated (greatly understated, it is believed) at about \$633,000,000. As far back as the reign of Catharine II., an attempt was made to cover the large annual deficits by large issues of paper roubles. In 1815 the value of the paper rouble had fallen so low that one silver rouble was equal to 4¼ paper ones. In 1901 the consolidated debt was \$26,783,050.

Revenue and Expenditure.—The sources of revenue are known officially as ordinary and extraordinary, and the purposes of expenditure as ordinary and extraordinary. The ordinary sources of revenue are taxes on lands, licenses, and incomes; tax on drink; on tobacco; on sugar; receipts from stamps; from customs; from registry fees; from other indirect taxes; from mining and mint royalties; post-office and telegraph service; domains and forests; miscellaneous sales; and other sources. The ordinary purposes of expenditure are interest on public debt; financial administration; the army; interior dept.; the navy; roads and communications; domains; public education; judiciary; support of the holy synod; imperial court; and other purposes. The receipts for 1889 were: ordinary \$450,539,010, extraordinary \$30,568,914—total \$481,107,924; expenditures, ordinary \$416,930,166, extraordinary \$51,009,288—total \$467,939,454. The estimates for 1890 were: receipts, ordinary \$432,004,252, extraordinary \$7,712,557—total \$439,716,809; expenditures, ordinary \$431,304,238; extraordinary \$28,099,888—total \$459,404,126. The estimated revenue for 1903 was \$1,595,183,953; the expenditure was estimated at the same; the chief items being ways of communication, finances, war, state debt, building of new railways.

Army.—The regular standing army dates from the close of the 17th c.: before that time, milit. levies were raised for longer or shorter periods. Till lately the army was raised by conscription; but 1870 an imperial ukase announced the principle of universal liability to milit. service, and another 1874 reorganized the entire milit. system. There is an annual conscription to which all men who have completed their 21st year, and are not physically incapacitated, are liable: substitution is prohibited. The period of service in the army is 23 years, 5 in active service, 18 in the army of reserve. During the

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latter period, the soldier is liable to service only in time of war. To enable the educated classes to free themselves from compulsory conscription, young men, sufficiently educated, may enter on a short period of service from their 17th year. The Cossacks now form in time of peace a perfectly organized body of men, easily attached to the cavalry division in time of war: in peace they have 21 regts. and 8 horse-batteries, increased in war to 62 and 22 respectively. The grand duchy of Finland has no milit. system of its own. The Russian army, on the peace footing, consisted 1902 of about 42,000 officers and more than 1,000,000 men. In war the strength is approximately 75,000 officers, 4,500,000 men and 562,000 horses. The expenditure 1903 was \$254,041,330. (For further details, see *ARMIES—Modern Armies.*)

Navy.—The Russian boundaries were first advanced to the sea under Peter the Great, and from the genius of that monarch the Russian navy sprang. Besides the naval depots on the Baltic, the Black, and the Caspian seas, there are naval establishments also on the shores of the north Pacific and on the Amur. In 1875 Russia had 137 war-vessels in the Baltic Sea, 31 in the Black Sea, and 55 on other waters. In 1903 there were 381 ships built or building, 24 being battle ships and 4 armored cruisers. (For further details, see *NAVIES, MODERN.*)

Religion and Churches.—Under certain limitations, toleration of all religions which do not violate public morality or good order exists in R., and not to profess the orthodox Greek faith, the national religion, does not disqualify as regards civil rights. But the law does not allow those who already belong to the established faith to secede from it; and if, in a household, either parent be a member of the Greek Church, all the children must be brought up within that communion (see *RUSSIAN CHURCH*). The emperor is head of the church, whose affairs he directs by means of a synod of the chief prelates (see *RUSSIAN CHURCH*). In 1887 there were in European R. 65,549,096 orthodox Greek Catholics; 15,000,000 Russo-Greek dissenters; 2,950,000 Protestants; 8,300,000 Rom. Catholics; 3,000,000 Jews; 2,600,000 Mohammedans; 526,000 pagans. There were in European R. (1898) 14 abps. and 48 bps. and about 37,000 churches of the national faith, with about 59,000 secular clergy. There are 785 convents, 496 for men, 289 for women. The clergy are either *black*, i.e., regular (dignitaries and monks), or *white*, i.e., secular, comprising the parochial clergy.

Population.—The pop. is spread irregularly over the surface. In European R., its average is less than 40 per Eng. sq. m.; in the Caucasus, more than 28; in Siberia, $\frac{3}{4}$; in Poland, 144; and in Finland, 14 per Eng. sq. m. These figures, however, cannot be taken as a correct illustration of the actual distribution of the masses over the enormous surface of the country; for, on comparison, the degree of density of pop. in Euro-

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pean R. is found to vary greatly in the different govts. The government of Moscow contains 166 inhabitants per Eng. sq. m.; while that of Archangel contains only $\frac{3}{4}$. The central and s.w. govts. of this part of the empire are the most densely peopled. The town residents are $9\frac{1}{2}$ per cent. of the whole pop. of European R.; $7\frac{1}{2}$ per cent. of that of the Caucasus; and 5 per cent. of that of Siberia. Russian society is divided into five classes, and of these the nobility form 1.49 per cent.; clergy, with their families, 1.01 per cent.; burgesses (*tiers état*), 8.60; peasants, 82.55; military, 6.35 per cent. Irrespective of Asiatic R., this empire comprises in Europe a greater variety of races than any other European state. It is not, however, like Austria, a composite community, speaking various idioms, and having different physical characteristics and political interests. In European R., the predominant race is the Slavonian, and the Russian 'element' and language prevail almost universally. The 85,282,101 Russians who inhabit Europe are divisible into—1. Great Russians, inhabiting central Russia. 2. Little Russians, located in the southwest. To the latter may be added the Cossacks, who are spread along the rivers Don, Kouban, Terek, Ural, Tobol, the Lake of Baikal, and the Amur. 3. White Russians, in the western provinces. The other Slavonic races are Poles, in the kingdom of Poland, and partly in the west provinces (where they form only $10\frac{2}{5}$ per cent. of the population); Servians and Bulgarians, in Bessarabia and New Russia. The Finnish race, which occupies, under different names, the north and north-east of European Russia, and the northwest of Siberia, has in great part adopted Russian language and manners. The Lithuanians and Letts dwell mostly between the Niemen and Dwina. The Turkish Tartarian race, in the southeast, and partly in Siberia, comprises Tchuvashes, Tartars of Kazan, Kirghis, etc. The Mongols comprise Kalmucks and other races in the southeast of European Russia and in the east of Siberia. Besides these races, there are Roumains and Walachs, in Bessarabia and New Russia; Persians, Kurds, Armenians, etc., near the Caspian Sea; Germans, distributed over the whole empire, but found in the greatest numbers in the Baltic provinces; Swedes, in Finland; Greeks, in the south; Bohemians—i.e., Gypsies—chiefly in Bessarabia; Jews, mostly in Poland and the west provinces; Caucasians; Samoyedes, in the north of R.; and many other tribes scattered over eastern Siberia.

Climate.—R., in its vast extent, presents great varieties of climate. At Archangel, the mean temperature of the year is 32° F.; at Yalta, in the Crimea, 52°; and at Kutais, in the Caucasus, 58°. Consisting of an immense area of dry land, the climate of the empire is essentially continental; and the climate of localities in its interior is much more rigorous than that of places on the w. shores of Europe in the same latitudes. The mean temperature of Edinburgh and Christiania is higher than

that of Moscow and Kazan. The rigor of the climate of the empire increases not only with the latitude, but also with advance eastward; thus, the mean winter temperature of the town of Abo, on the Gulf of Bothnia, is the same as that of Astrakhan—viz., 23° F.; though Abo is in lat. 61° , and Astrakhan in lat. 47° , or 14° nearer the equator. The difference of the mean summer temperature under the same latitudes is, on the contrary, not very considerable. The isothermal line of Astrakhan (60° F.) passes through Lublin in Poland and Ekaterinoslav. In the e. the maximum heat is even greater than in the w.; and such heat-loving plants as the water-melon are grown more successfully in s.e. R. than in w. Europe, under the same latitude. The dryness of the atmosphere increases in the direction from n.w. to s.e. On the banks of the Baltic, the average number of rainy and snowy days is 150, and the annual rainfall 20 inches, while near the Caspian the number of such days is 70, and rainfall only 4 inches. The climate of R. is in general healthful; but there are several places where diseases seem localized—e.g., the shores of the Frozen Ocean, where scurvy is common; the marshes along the Niemen and Vistula, where the Plica Polonica (q.v.) is the chief disease; and the marshy lands on the Black, Azov, and Caspian seas, where ague always prevails.

Manufactures.—Manufacturing industry in R. may be said to date from the reign of Peter the Great. With a view to its promotion, foreign manufactured goods are heavily taxed on importation.

Of the factories (exclusive of iron and other metal works), about a half are in the govts. of St. Petersburg, Moscow, and Vladimir. The metallurgical works are mostly in the govt. of Perm, and other e. govts. bordering on the Ural Mountains. Small handicraft manufacturing establishments abound in all the central govts., especially in the neighborhood of Moscow, where whole villages during the winter season are employed in some special industry, as weaving, tanning, fur-dressing, joiners' work, shoemaking, etc. The chief manufacture is spinning and weaving flax and hemp. Linen is very largely manufactured, chiefly in hand-loom; though the finer qualities are manufactured by power-loom, mostly in the govts. of Jaroslav and Kostroma, and the capitals. Hemp is manufactured into sail-cloth and ropes, largely exported. Woolen and worsted stuffs are made extensively, and the quantity is increasing. Fine cloths and mixed fabrics are made in the capitals, and in the govts. of Livonia and Tchernigov. Silk spinning and weaving are carried on in the factories of Moscow. In 1897 there were in European R. (without Poland and Finland) 30,029 manufactories of all kinds, employing 2,098,242 work-people; besides many small works, with not more than 5 workers each. Through the influence of the protective system, cotton spinning and weaving have been rapidly extended in recent years (the largest cotton-mill is at Narva, q.v.). The other

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Important branches of industry are tanning; next cutlery, made in the town of Tula, the Russian Sheffield, and in the govts. of Nijni-Novgorod, Vladimir, and Kostroma; and pottery and glass works, the former in the govt. of Moscow, the latter in that of Vladimir. The product of the textile industries 1897 was valued at \$717,647,920; of metal industries at \$542,368,750; of food manufactures, \$499,049,320. The cotton industry proper is valued at \$395,680,000 per year.

Commerce.—The Russian empire, including provinces varying widely in their natural and industrial resources, presents an extensive field for internal commerce, while the abundance of its products maintains a vast foreign trade. Of the internal commerce, far the more important, the extent and value cannot be given, from lack of statistical data. Moscow, in the centre of the industrial provinces of the empire, and the great depot for the wares that supply the trades of the interior, is the chief seat of the home trade. The other large trading towns are chiefly those on the banks of the great rivers. The goods yearly conveyed by the Volga alone amount to 200,000,000 roubles (\$123,400,000). Owing to the distances between the great trading towns, fairs are still of great importance in Russia. The transactions of all the fairs in the empire amount to more than 300,000,000 roubles (\$185,100,000); the chief are those of Nijni-Novgorod (q.v.), Irbit (q.v.), Kharkov (q.v.), Poltava (q.v.), and Kursk (q.v.).—The foreign trade consists mainly of export of raw products, and import of colonial and manufactured goods. The foreign trade by sea is five times greater than the trade by land; and of the latter the commercial transactions with Europe amount in value to ten times the Asiatic trade. One-third of the whole foreign commerce is transacted at St. Petersburg, one-ninth at Odessa, and one-fifteenth at Riga. The principal exports from R. are as follows, in the order of importance: wheat, rye, flax, linseed, oats, wood, hemp, wool, barley, cattle, maize; also unwrought metal, bristles, tow, leather, tallow, oil, fur, caviare. Chief imports: raw cotton, engines and machinery, wool, tea, cotton yarn, chemicals and drugs, coal and coke, wrought-iron, wine, metal wares, non-mineral oils, fruit; also petroleum, salt, tobacco, linen, indigo, glass wares, coffee, books. Raw sugar, formerly a chief import, has been reduced since 1878 to a very small quantity by development of the beet-sugar manufacture. In 1889 the total imports were \$212,333,400; exports \$372,519,000. The principal imports were, in order, from Germany (\$60,416,090), Great Britain (\$48,942,144), United States (\$24,669,360), China, France, Austria-Hungary, Persia, Belgium, Italy, Turkey Sweden and Norway, the Netherlands, Roumania, Denmark, and Greece. The principal exports were to Great Britain (\$133,347,222), Germany (\$93,479,670), the Netherlands, France, Austria-Hungary, Italy, Belgium, Turkey, Sweden and Norway, Denmark, Persia, Roumania,

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Greece, United States (\$738,692), and China. The value of exports in 1902 exceeded the imports by \$150,000,000. The vessels sailing under the Russian flag numbered 217; tonnage, 336,132. The mercantile marine numbered 3,038 vessels; vessels entering all ports (China excepted) 10,236; cleared 10,039.

Geology and Mineral Products.—In 1841 the Brit. geologist Sir R. I. Murchison undertook a scientific journey to R. and the Ural Mountains: his geological investigations, with the paleontological researches of his colleagues, E. de Verneuil and Count Kayserling, have served as basis for further surveys. The oldest stratified rocks are the Silurian, on the s. shores of the Gulf of Finland, sinking below the Devonian strata, which run in two large branches—on the s.e. to Voronesh, and on the n.w. to Archangel—both overlaid to the e. by a still more extensive deposit of carboniferous rocks. The immense triangle between those layers and the Ural is occupied by the Permian system (except the n.e. extremity, covered by Jurassic beds), named by Murchison from its development in the govt. of Perm. S. of the s.e. Devonian branch extend deposits of the cretaceous period, and detached patches of the carboniferous formation. The latter contains, in R., only the older members of the group, up to the mountain limestone, in which are numerous but thin seams of coal, generally poor. The field along the Donetz forms an exception, and yields annually about 96,400 tons ($\frac{2}{3}$ of the total quantity raised in R.) of good soft coal and anthracite. The remaining s.w. and s.e. parts of the empire are covered by tertiary beds, more or less recent. The Ural Mountains present an outcrop of all the secondary and paleozoic formations down to the stratified gneiss and granite, which latter composes nearly the whole province of Finland, and skirts the middle course of the Dnieper. The Ural Mountains (q.v.), containing almost all the mineral riches of the country, are the principal seat of mining and metallurgic industry. They produce gold, platinum, copper, and iron of excellent quality, especially the iron, which is manufactured from magnetic ore. Emeralds, sapphires, amethysts, agates, rhodonites, rock-crystal, jasper, chrysoberyl, and black tourmaline are found, as well as diamonds of inferior quality. Gold is obtained by the washing process in Siberia (63,194 lbs. in 1882), the Urals (16,850 lbs.), central Asia, and Finland; silver in Siberia (16,128 lbs.), and partly on the Caucasus; platinum in the Urals (3,600—4,600 lbs. annually); lead in connection with silver (19,416 cwts.); zinc only in Poland (89,650 cwts.); tin in Finland; copper in various govts., but in decreasing quantities; iron in the Moscow and Donetz basins, the w. provinces, Asiatic dominions, Poland, Finland, and the Urals; coal in the Donetz ($\frac{3}{4}$ of total product) and Moscow ($\frac{1}{2}$ product) basins, Poland, and Asiatic dominions (1882 total product 46,270,000 cwts.); and salt (rock, spring, and lake) in numerous places in R. and Siberia (1882 product 16,360,000 cwts.). Excel-

lent china clay or kaolin is found near Gluchov, in the govt. of Tchernigov.

Agriculture and Products.—R. is an eminently agricultural country, though only a comparatively small portion (271,000,000 acres) is under cultivation. In the *central zone* (see above, at *Surface*), the soil is almost entirely black mold, extremely fertile, seldom requiring manure. The usual system of husbandry is the 'three-field system,' in which one-third of the land is always in fallow. In the s. and s.e. the 'fallow system' is in operation—consisting in raising three or four consecutive crops from the same land, and then letting it lie fallow five or six years, after which time it begins to grow feather-grass (*Stipa pennata*), considered a token of returning fertility. Husbandry, in general, has undergone great changes since the emancipation of the serfs, to whom a considerable portion of the land has been transferred in freehold. The landowners, deprived of their former right to the labor of their serfs, now find it more profitable to reduce the amount of their land in cultivation, or to grant portions of it in lease to the peasants, often in return for half the product. A great drawback to development of agriculture is lack of means of communication, consequently low price for corn in the locality in which it is grown. Fodder-grass is rarely cultivated, as sufficient fodder is afforded by the extensive natural meadows. The chief cereals are wheat—grown as far north as lat. 62°—rye, barley, and oats. Buckwheat and millet are grown in the s., and from these, but specially from rye, the staple food of the inhabitants is made. Hemp and flax are extensively cultivated; and the oil extracted from the seeds of hemp is an indispensable article of the peasant's household, as it is used for food during the fasts, which, taken together, extend over about half the year. Of flax, 15,000,000 poods (540,000,000 lbs.) are annually produced; of hemp, 7,000,000 poods (252,000,000 lbs.), and 3,000,000 poods (108,000,000 lbs.) of oil-seeds. After the famine of 1839, govt. introduced and afterward promoted cultivation of potatoes, of which the yearly product amounts to 55,000,000 *tchetverts* (1 *tchetvert* = 5.77 imperial bushels). Tobacco crops cover 16,000 acres, and the amount produced is 2,500,000 poods (90,000,000 lbs.). Beet-root and maize are cultivated; and there are numerous vineyards in the Crimea, in Bessarabia, and along the Don. Gardening is an important industry, the products being cucumbers, onions, cabbages, and other vegetables and fruits. An area of 527,000,000 acres is covered with woods, but the quantity of timber, from which material the peasant supplies almost all his wants, is at present diminishing. The Russian builds his cottage with timber, heats his room with it, lights his house with firewood, makes his household utensils from the same material, as well as his cart, etc.; his shoes, and the mats which he uses for coverings, are made from the inner bark of the lime-tree. In the n. the forests occupy 90 to

95 per cent. of the whole surface; in the s., their proportion is much less. Coniferous trees are the chief in the n. districts; but in the central tracts, oaks, limes, maples, and ashes are the chief. Timber is the principal article of internal commerce, and is floated down the rivers from the well-wooded districts to their market.

Animals and Animal Products.—In the n. and central provinces, cattle are kept chiefly for supplying manure; but in other parts, cattle-breeding is an important industry. In 1900 there were 43,589,900 cattle, 70,647,300 sheep and goats, and 13,924,500 swine. Of horses, chiefly trotters, are reared in breeding stables in the s. central govts.; the great majority of horses are from the half-wild studs of the Cossacks, Kalmucks, and Kirghis. The horses of Viatka, Kazan, and Finland are strong and hardy. In 1900 there were in Poland, Russian Asia and the Caucasus alone 25,961,700 horses. There are camels in s. R., reindeer in the n., and hogs and poultry in great abundance everywhere. A breed of the *Urus* (q.v.), huge and rare animal not found in any other country, is preserved in a forest of the govt. of Grodno. Among the wild animals are (chiefly in the n.) the bear, wolf, elk, fox, and marten; on the n. coasts are the seal and walrus, and the eider-duck and other wild-fowl. The more expensive kinds of furs are procured from Siberia. The most important Russian fisheries are those of the Caspian and Black seas and the Sea of Azov, and their tributaries. The lake fisheries also are very valuable. Herrings, codfish, and salmon are caught in abundance in the White Sea, and are the main source of livelihood to the inhabitants of those regions. The value of the Russian fisheries is estimated at about \$10,000,000 annually. Bee-culture is very general in R., and silk-worms are reared in the Caucasus.—See statistical works of Sarauw (1873); Von Lengenfeldt (1875); Wilson (St. Petersburg 1876); also *Russia*, by D. Mackenzie Wallace (1877); *Russia*, by W. R. Morfill (1880).

History.—Copious histories of R. are numerous, those of Karamzin, Solovief (1851–77), and Schnitzler (German transl. 1874), being standard Russian works. More accessible are Turgenief, *La Russie* (Par. 1847); Rambaud, *Histoire de Russie* (Par. 1878).—The population of the Russian empire is of various nationalities, but the predominant one is the Slavonic (q.v.). The eastern Slaves, ancestors of the Russians, were settled near the sources of the rivers Volkhof, Bug, Dniester, Dnieper, and Don, and consisted of several tribes whose chief towns were Novgorod and Kieff. Being harassed by their warlike neighbors, and distracted by intestine dissensions, the Slaves of Novgorod and the neighboring Finnish tribes, in 862, sent ambassadors to ‘the Variags (Varangians, Normans) beyond the sea,’ inviting their chiefs to come and reign over them. Three brothers of the tribe, called by the old chroniclers *Rurik* (q.v.), Sineus (Sindf), and Truvor, accepted the invitation, and at the head of a band of armed followers (*droujina*) took possession of the terri-

tory of Novgorod.—Oleg (ruled 879–912), who exercised authority as regent to Igor, Rurik's son, took Kieff, and made it the cap. of the embryo empire, subduing the neighboring tribes, and even successfully attacking the Byzantines.—*Igor* (ruled 912–945) did nothing of note, but his widow and successor, *Olga* (ruled 945–957), was a wise and able ruler: she was baptized 955 by the patriarch of Constantinople, and abdicated soon afterward in favor of her son *Sviatoslaf* (ruled 957–972), a warlike monarch and a pagan, who was treacherously murdered by a neighboring tribe with whom he was at war. On his death, the principality was divided among his three sons, and the usual quarrels followed, and continued till *Vladimir* (ruled 980–1015), youngest son, became sole ruler. The Norman immigrant stock now definitively became amalgamated with the Slavonic race. Vladimir's reign is the 'heroic' epoch of Russian history; and the glories of the court, and the valiant feats of the warriors of the 'sunny Prince Vladimir,' have been handed down through ages in legend and song. His successful wars extended the boundaries of R. to Lake Ilmen on the n., to the mouths of the Oka and of the Khoper (affluent of the Don) on the e., to the falls of the Dnieper on the s., and to the sources of the Vistula on the w. He became a convert to the Greek faith, and 988 was baptized, with his followers; his example being soon followed by the whole nation, for whose spiritual guidance and supervision a metropolitan was established at Kieff. He followed the evil example of his father in dividing his dominions; and after his death a civil war broke out among his four sons, in which *Jaroslaf*, Prince of Novgorod, was ultimately (1036) successful. This prince (ruled 1036–54) did much to civilize his subjects by building towns, founding schools, and especially by ordering the compilation of the first Russian code of laws ('*Rousskaia Pravda*'), the most prominent item of which was the limitation of the right of family feud, a limitation which was changed into total abolition after his death, by his sons, who shared the principality among them. Each of these petty princes in turn divided his portion of territory among his sons, till the once great and united realm became an agglomeration of petty states quarrelling with each other, undergoing absorption by a more powerful neighbor, or being redivided. This state of anarchy, confusion, and petty warfare dates from the death of Jaroslaf 1054, and continued, more or less, till 1478.—The principal among the sub-divisions of R., during this period, were, according to Russian authorities, *Sousdal*, which occupied the upper and central parts of the basin of the Volga, and from which, in the beginning of the 13th c., sprang the principalities of *Tver*, *Rostoff*, and *Vladimir*; *Tchernigov* and *Seversk*, which occupied the drainage-area of the Dnessa (affluent of the Dnieper), stretching to near the sources of the Oka; *Riazan* and *Murom*, along the Oka basin and the sources of the Don; *Polotsk*, including the basins of

the W. Dwina and Beresina; *Smolensk*, occupying the upper parts of the basins of the W. Dwina and Dnieper; *Volhynia* and *Galicia*, the first drained by the Pripiet, the second lying on the n.e. slope of the Carpathian Mountains (the two were united 1198); *Novgorod*, by far the largest of all, which occupied the immense tract bounded by the Gulf of Finland, Lake Peipus, the upper parts of the Volga, the White Sea, and the N. Dwina; and the grand-duchy of *Kieff*, which, from its being formerly the seat of the central power, exercised a sort of supremacy over the others. Novgorod, however, from its size and remoteness, as well as from certain privileges granted to it by Jaroslaw, was almost independent of the grand-duchy. The citizens of Novgorod chose their own dukes, archbishops, and in general all their dignitaries; and proved the superiority of their system of self-administration by increasing in power and wealth year by year. One of the chief factories of the great Hanseatic League was established in Novgorod in the 13th c. In fact, so great was its fame throughout R., as to give rise to the proverb, 'Who can resist God and the mighty Novgorod?' The princes of these states had each his standing army, and were continually quarrelling; but the people were less oppressed than would be expected under such circumstances, on account of the establishment in each state of a 'common council' or *veche*, which exercised an important influence in state affairs, and without which the prince was almost powerless. This period was marked also by the gradual amalgamation of the different Slavic races into one, the present Russian race; a process aided doubtless by the universal dissemination of Christianity, which assimilated their various languages, manners, and customs.—The chief of the grand-dukes of Kieff was *Vladimir*, surnamed 'Monomachus' (ruled 1113–1125), whom chroniclers are never tired of lauding as a model prince, and one whose authority was acknowledged almost as paternal by the princes of the other provinces. In 1163 the ruler of the principality of Vladimir took possession of Kieff, and proclaimed himself grand-duke.—In 1222 the Mongol tide of invasion had swept westward to the Polotzes, a nomadic tribe who ranged over the steppes between the Black Sea and the Don, and whose urgent prayers for aid were promptly complied with by the Russian princes; but in a great battle (1223) on the banks of the Kalka (tributary of the Sea of Azov), the Russians were totally routed. The Mongols, as usual, did not follow up their victory; but 12 years afterward, Batû Khan, at the head of half a million of Kiptchak Mongols, conquered e. Russia, destroying Riazan, Moscow, Vladimir, and other towns. The heroic resistance of Prince George of Vladimir cost the lives of himself and his whole army on the banks of the Siti. The Mongol conqueror's victorious career was, however, arrested by the impenetrable forests and treacherous marshes s. of Novgorod, and he was forced to return to the Volga. In 1240

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he ravaged the s.w., destroying Tchernigov, Galicia, and Kieff; ravaged Poland and Hungary, defeating the Poles at Wahlstatt, and the Hungarians at Saïo; but being checked in Moravia, and receiving at the same time the news of the khakan's death, he retired to Saraï, on the Akhtuba (tributary of the Volga), which became the cap. of the great khanate of Kiptchak. Thither the Russian princes repaired to swear allegiance to the khan and take part in the humiliating ceremonies which the barbarous conqueror exacted from his tributaries. The taxes of R. were farmed out by the khan to contractors, generally oriental merchants; and they were collected by the aid, when necessary, of the khan's soldiers. But in later times (during the most of the 14th and 15th c.), when the fiery energy of the Mongols was on the decline, the taxes were collected by the Russian princes and sent to Saraï. The Mongol invasion had an evil influence on the political, social, and moral life of R.; it totally destroyed the elements of self-government, which had already attained considerable development, arrested the progress of industry, literature, and the other elements of civilization, and threw the country more than 200 years behind the other states of Europe. The principalities of Kieff and Tchernigov never recovered from this crushing blow, and the seat of the metropolitan was removed to Vladimir. Their decline, however, made room for the rise of Galicia to pre-eminence in western R., and under the rule of a series of wise princes it preserved greater independence than any of the Russian principalities; till, in the latter half of the 13th c., it was taken possession of by Casimir III. of Poland; and about the same time Volhynia was joined to the grand-duchy of Lithuania. The rise of this latter state was favored by the prostration to which the Russian princes were reduced by the Mongol invasion, and after a flourishing existence of several centuries, during which it extended in power, so as to include Livonia proper and the Russian provinces of White R., Volhynia, Podolia, and the Ukraine, it was joined 1569 to Poland.—On the n. of Lithuania arose in the beginning of the 13th c. another power, the Livonian Knights Sword-bearers, who took possession of Livonia, Courland, and Esthonia, as well as portions of the territory of Novgorod and Pskov.—The grand-ducal title passed after the Mongol invasion from Kieff to Novgorod, and afterward to Vladimir, where the celebrated Alexander Newski (q.v.) (reigned 1252–63) swayed the sceptre.—In the beginning of the 14th c., eastern R. consisted of the principalities of Sousdal, Nijni-Novgorod, Tver, Riazan, and Moscow; and long and bloody contests for the supremacy took place between the two most powerful of these, Tver and Moscow. At last, under the guidance of *Ivan Kalita* (reigned 1328–40), founder of the system of administrative centralization which prevailed till the time of Peter the Great, Moscow became the chief grand-duchy. This result was due to various causes; chief of which were

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the central position of Moscow, the prevalence there of the law of primogeniture, the favor of the Mongol khan, the sympathy of the church—whose head the metropolitan had removed thither from Vladimir 1325—and the weakness of most of the other princes.—Ivan's son and successor, *Simeon the Proud* (reigned 1340--53), followed in his father's footsteps, as did also the regency which administered the govt. during the reign of the weak-minded *Ivan II.* (reigned 1353--59), and the minority of his son Dmitri.—*Dmitri* (1359--89) conquered Nijni-Novgorod, carried on war with success against Tver and Riazan, and profited by the weakness of the Mongol khanate, now divided into the four hordes of Nagaïsk, Crimea, Kazan, and Astrakhan, to make the first attempt to shake off the shameful yoke under which the Russians had groaned so long. His brilliant victory over the Khan Mamaï on the banks of the Don (1380), which conferred on him the epithet Donskoï, was the first step to liberation; but the succeeding khan, in revenge, burned Moscow, exacted a heavy tribute from the people, and rivetted their bonds more firmly than ever.—*Vassili I.* (reigned 1389--1425) obtained possession of the principality of Nijni-Novgorod with the full consent of the khan, and conquered Rostoff and Murom. During his reign, R. was twice invaded by the Tartars, first under Timur, and again under Edijeï, and was at the same time attacked by the Livonians.—*Vassili II., the Blind* (reigned 1425--62), ruled during a period marked with continual civil wars among the various princes for the grand-ducal throne; but from this period the division of power in eastern R. rapidly disappeared, internal troubles ceased, and the re-united realm acquired from union the power of casting off the Tartar yoke.—These results were achieved by *Ivan III.* (reigned 1462--1505), surnamed 'the Great,' who availed himself of every opportunity for abolishing the petty principalities which owed him allegiance as grand-duke, and manœuvred so skilfully, that some of the princes voluntarily surrendered their rights, others bequeathed their lands to him, while others, as the prince of Tver, were reduced by force of arms. The heaviest task of all was the reduction of Novgorod, but so vigorously did Ivan carry out his schemes, that 1478 this last of the great principalities was added to his empire. He then took advantage of the dissensions between Achmet, Khan of the Golden Horde, and Mengli-Gheraï, Khan of the Crimean Horde, to deliver R. from its state of servitude by uniting with the latter; their combined arms destroying the power of the former 1480; and the kingdom of Astrakhan, which rose on its ruins, was wholly unable to cope with the now powerful monarchy. He next turned his attention to the w. provinces, which had formerly belonged to the descendants of St. Vladimir, but were now in the hands of the Lithuanians, under whom the adherents of the Greek Church were bitterly oppressed by the Rom. Catholics, and accordingly hailed

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the advance of Ivan's army as a deliverance from persecution. The battle which followed was in favor of the Russians, but produced no important results. Ivan married (1472) Sophia, niece of Constantine Palæologus, the last Byzantine emperor; and he introduced the arts of civilization through the medium of architects, founders, coiners, miners, etc., whom he brought from Italy, the result of whose labors is seen in the Kremlin and the Cathedral of the Assumption (Ouspenski Sobor). He also fortified many towns, introduced to his court the splendor of Byzantium, assumed the title Czar of All the Russias, adopted the arms of the Greek empire, and united the existing edicts into a body of laws, the 'Soudebnik.'—*Vassili III.* (reigned 1505–33) followed closely his father's policy, made war on the Lithuanians, from whom he took Smolensk, and incorporated with his dominions the remainder of the small tributary principalities.—His son, *Ivan IV.* (reigned 1533–84), known afterward as 'the Terrible,' became monarch at the age of three years, and the country during his long minority was distracted by the contentions of factious bojars striving for power. Fortunately, however, on his attaining his majority 1547, he found two wise and prudent counselors, Sylvestre and Adascheff, who with his queen, Anastasia Romanoff (see ROMANOFF), exercised over him a most beneficent influence. The interior administration was remodelled, the 'Soudebnik' of his grandfather was reformed and amended, the *Streltzi*, the first standing army in R., were established, and printing was introduced. His arms were everywhere victorious; the strongly fortified city of Kazan was captured 1552, and the kingdom of which it was the cap. was annexed to his empire; and the kingdom of Astrakhan shared the same fate soon afterward. The marauding Tartars of the Crimea were held in check, and the Knights Sword-bearers attacked and driven from Livonia and Esthonia. About this time a remarkable change came over Ivan's character, which seems to have been of the nature of insanity and in some way connected with the death of his wife, Anastasia. He became suspicious of every one, believed himself surrounded with traitors, banished his two counselors, Sylvestre and Adascheff, and persecuted the bojars, many of whom perished on the scaffold, while others fled to foreign countries. His insane rage fell upon whole towns; thousands of people were destroyed in Tver, Novgorod, and Moscow; and, finally, he murdered his eldest son. Stephen Bathory, King of Poland, meantime wrested Livonia from him, and the Crim-Tartars made an irruption northward, and burned Moscow. During the reign of this monarch, w. Siberia was conquered for R. by the Cossack Ermak: see SIBERIA.—His son, *Feodor* (reigned 1584–98), was a feeble prince, who intrusted his brother-in-law, Boris Godounof, with the management of affairs. Godounof was a man of rare ability and intellect, and proved an able administrator. The Russian dominion in Siberia was consolidated,

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numerous towns and fortresses were erected in the s. as barriers against the Crim-Tartars, the Greek Church in R. was declared independent of the patriarch of Constantinople. Feodor was the last reigning monarch of the house of Rurik, for he died childless, and his only brother, Dmitri, was murdered 1591 by order of Godounof, according to popular rumor.—After the death of Feodor, representatives of all classes were convoked at Moscow to elect a new sovereign, and their choice fell on *Godounof* (reigned 1598–1604). The mysterious death of Prince Dmitri favored the appearance of pretenders to his name and rank, the first of whom, a supposed monk of the name of Gregory Otrepieff (see DEMETRIUS), was defeated by Godounof; but on the sudden death of the latter, Otrepieff was crowned 1605. A revolt, headed by Prince *Vassili Shouisky* (reigned 1606–10), soon broke out, the czar was murdered, and Shouisky elevated to the vacant throne. But a second false Dmitri now appeared, and Sigismund of Poland, taking advantage of the confusion thus produced, invaded R., proclaimed his son Vladislaf czar, and took possession of Moscow (1610), carrying away the czar to die in a Polish prison. At the same time, hordes of Tartars, predatory bands of Poles, and gangs of robbers devastated the provinces, and the wretched country was reduced to the verge of complete disorganization. But the clergy nobly stood forth to save the state from ruin; and Minin, a common citizen of Nijni-Novgorod, so aroused his fellow-citizens that they volunteered for military service, and chose as their leader Prince Pojarsky, a man of distinguished valor. Pojarsky retook the capital, drove the Poles out of R., and convoked an assembly of representatives, who unanimously chose for their czar *Michael Feodorovich Romanoff* (reigned 1613–45): see ROMANOFF. The first care of the new monarch was to put an end to the revolt of the Don Cossacks, who had set up the son of the first false Dmitri as czar, and to the depredations of the robber-gangs in s.w. Russia. In 1617 he concluded a treaty with Sweden, by virtue of which that power received the coasts of the Gulf of Finland and a considerable pecuniary indemnity, in consideration of Philip, the brother of the Swedish monarch, renouncing his claims to the Muscovite throne. In 1618 and 34 he purchased peace from the Poles at the cost of Smolensk and a portion of Seversk. Having thus freed himself from danger of foreign interference, he directed his attention to the internal administration, which, especially in the courts of justice, was reduced to a deplorable condition; and to aid him in this necessary task, he summoned a general council of representatives at Moscow.—*Alexei* (reigned 1645–76), his son and successor, being a minor, the nobles seized the opportunity of increasing their power and exercising oppression and extortion over their inferiors, till rebellions broke out in various districts. Other causes of discontent were the heaviness of the taxes, the oppression of the serfs, the depreciation of

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the currency which was changed from silver to copper, and the secession from the Russian Greek Church of those who disapproved of the changes and corrections in the books and liturgy of the church introduced by the patriarch Nikon. These malcontents were accordingly persecuted, and fled, some to n. Russia, others to the Ukraine, where they founded many colonies, and still exist apart under the name of 'Old Ritualists' (*Staro-Obriady*). A general council, convoked to deliberate on the best means of restoring peace to the country, revised the existing laws, and composed (1649) a new code—'Sobornoe Ulajenie,' which granted to every subject the right of direct appeal to the czar. Tolls on the highways were abolished, the English and other foreign merchants were deprived of their privilege of free trade with R., and the silver currency was reintroduced. The chief events in foreign policy were the acquisition of Little Russia by the voluntary submission of the Cossacks (see POLAND); a consequent war with Poland, in which R. acquired Smolensk and the greater part of White Russia; and a war with Turkey, which continued till after the accession of *Feodor* (reigned 1676–82), when it was terminated (1681) by the treaty of Bakhchisarai, by which Turkey gave up all claims to Little Russia.—After Feodor's death, the general council of the land, in accordance with his last wishes and their own predilections, chose his half-brother Peter as czar, but his half-sister Sophia, an able and ambitious princess (see PETER I., THE GREAT), succeeded in obtaining the reins of power as princess-regent. She concluded peace with Poland 1686, made two unsuccessful campaigns against the Tartars of the Crimea; and after an attempt to deprive Peter of his right to the throne, and, failing in this, to assassinate him and his mother, she was forced to resign all power and retire to a convent. All her accomplices were put to death; and PETER (reigned 1689–1725) ascended the throne as sole ruler, his half-brother Ivan being allowed to retain the title of czar conjointly, and to appear as such at public ceremonies, but without any real authority.—In order more fully to show the importance of the changes wrought by Peter in R., a brief retrospect of its social and political condition at the date of his accession is necessary. At the head of govt. stood the czar, with absolute power in administrative, judicial, and military affairs. In the exercise of authority he was aided by his council, the 'Bojarskaia Douma,' and in cases of extreme need by a general council of representatives of the people, which latter, however, had a right of deliberation only. The criminal code was cruel in the extreme. Of the standing army, the *Streltzi* only deserved the name. The population was divided into two great classes: *bojars* or nobles, who were bound to render service for their estates; and *burghus* or industrial and trading classes, and *serfs*, who were bound to the soil. The clergy exercised great influence over all classes, possessed offices in the 'douma,'

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and exercised political functions. Agriculture was in a low state, and the few manufactories and industrial establishments were in the hands of foreigners. Civilization and learning, introduced during the confederative period, had never recovered the shock of the Mongol invasion; but in later times they entered R. through the connection of Novgorod with the Hanse League, and from intercourse with Poland, though they never reached the rural population or the lower classes. The education even of the higher classes was limited to reading and writing, and the first school for classics and theology made its appearance not till Feodor's reign. Fine arts were limited to architecture and painting of sacred subjects) after the Byzantine school. The first newspaper appeared (in Moscow), and the first theatre was established, during the reign of Alexis. The degraded social condition and the oriental influence of the Mongols left powerful traces on the domestic manners and habits of the Russians, among which were the despotic authority of the father over his household, and the low position of women in domestic life; women of the lower ranks being made mere slaves, while those of higher rank were completely excluded from social intercourse with the other sex, and were condemned to a dull and dreary existence in their 'terems.' Marriages were concluded by the parents without consent of bride and bridegroom.

The history of R. during Peter I.'s reign is merely a biography of that monarch: see PETER I. (ALEXEIVICH) for a brief sketch of the numerous and important improvements effected by him in the government and civilization of his subjects. It must, however, be noted, that, in carrying out his well-meant schemes, he seldom consulted the national character of his people, or the natural conditions of the country; consequently, when the irresistible pressure of his high intellect and indomitable will was withdrawn, it was found that, in great part, the civilization which he had forced on his subjects was but skin-deep.—In accordance with the terms of his will, his second wife, *Catharine I.* (q.v.) (reigned 1725–27), succeeded him; though the old or anti-improvement part of the nobility supported the claims of the only son of the unfortunate Alexei (q.v.), *Peter II.* (q.v.) (reigned 1727–30), who soon afterward obtained the imperial throne. The reigns of both these sovereigns were occupied with court quarrels and intrigues, Menshikoff (q.v.) during the former, and Dolgorouki during the latter, being the real rulers.—On the death of Peter II., the privy council, setting aside the other descendants of Peter I., conferred the crown on *Anna* (q.v.), Duchess of Courland, daughter of Ivan. Her reign (1730–40) was marked by predominance at court of the German party, who, unchecked by the weak sovereign, treated R. as a great emporium of plunder, and the Russians as barbarians (see BIRON). Under their influence, R. restored to Persia her lost Caspian provinces, and was led into a

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war with Turkey productive of nothing but an immense loss of men and money.—Her successor was *Ivan* (reigned 1740–1), son of her niece, the Duchess of Brunswick, Anna Carlovna (q.v.); but he was speedily dethroned by *Elizabeth* (q.v.) (reigned 1741–62), daughter of Peter I., who deprived the German party of the influence that it had so shamefully abused, restored the senate to the power with which it had been intrusted by Peter the Great, established a regular system of recruiting, abolished tolls, and increased the duties on imports. During her reign, French influence was paramount, and the French language supplanted German at court. R. gained by the treaty of Abo (1743) a portion of Finland, and took part in the *Seven Years' War* (q.v.).—Elizabeth's nephew and successor, *Peter III.* (q.v.) (reigned a few months in 1762), put a stop to all interference with the quarrels of w. Europe, and introduced commendable ameliorations of the oppressive enactments of his predecessors; but he was speedily dethroned by his able and unscrupulous consort, who, as *Catharine II.* (q.v.) (reigned 1762–96), ascended the throne, and proved herself the greatest sovereign of R. after Peter I. Her successful wars with Turkey, Persia, Sweden, and Poland, largely extended the limits of the empire; and while by her foreign policy protecting her subjects from external invasion, she gave attention also to internal reforms. The laws and administrative arrangements were revised, and the empire was divided into govts. (an arrangement which, with slight modification, still subsists), each govt. being under a separate administration, both as to polity and as to justice.—Her son and successor, *Paul I.* (q.v.) (reigned 1796–1801), at first, through apprehension of the revolution in France, joined the Austrians and British against France; but soon capriciously withdrew, and was about to begin war with Britain, when he was assassinated. He gave freedom of worship to the 'Old Ritualists,' which till this time had been withheld; but he established a severe censorship of the press, prohibited introduction of foreign publications, and organized a secret police.—His eldest son, *Alexander I.* (q.v.) (reigned 1801–25, was at the outset desirous of peace, but was soon drawn into the vortex of the great struggle with France, in which he acted a prominent, though at one period an inconsistent, part: he raised R. to a place in the first rank among European states. For the character of his rule and the internal improvements that he effected, see ALEXANDER I. (PAULOWITSCH); and for an outline of the warlike operations, see NAPOLEON I. The Holy Alliance (q.v.) and the example of conservative policy set by Austria exercised a pernicious influence on the latter part of his reign; and the higher classes, who had looked for the introduction of at least a portion of the liberal institutions that they had seen and admired in w. Europe, became so dissatisfied, that when his youngest brother, *Nicholas I.* (q.v.) (reigned 1825–55), from whom they had nothing to hope, suc-

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ceeded, they broke into open rebellion, which was speedily crushed. A stop was now put to the rapid advance of R.'s prosperity; wars were declared with Persia and Turkey; and a long and deadly struggle commenced with the Caucasian mountaineers—all for the ill-concealed object of extending Russian domination; and the cession of Erivan and Nahituvan by Persia, of the plain of the Kuban, of the protectorate of the Danubian principalities, and of the free right of navigation of the Black Sea, the Dardanelles, and the Danube by Turkey, only whetted the appetite for more spoil. In 1830, Nicholas converted Poland (q.v.) into a Russian province; 1849 he officiously aided Austria in quelling the insurrection of the Magyars; 1853 his almost irresistible craving for more territory led him (probably under the impression that Turkey would stand alone, as she had done hitherto) into the Crimean War (q.v.), in which, though the allies, Britain, France, and Sardinia, did not obtain any decided success, R. suffered immense loss of military prestige on the Danube, at Silistria, on the Alma, and before Sebastopol, and was almost drained of her vast resources of men and money.—The accession of Nicholas's son, *Alexander II.* (reigned 1855–81)—one of whose first acts was the conclusion of the Peace of Paris (1856), by which R. lost the right of navigation on the Danube, a strip of territory n. of that river, and the unrestricted navigation of the Black Sea—was the signal for revival of those schemes of reform which had been crushed so despotically by the late czar. Alexander's first great reform was the abolition of serfdom, thus creating 14 millions of new free citizens. Corporal punishment, and the farming-system of the indirect taxes, were abolished; and the judicial power was separated from the administrative, and founded on trial by jury. The insurrection in Poland (q.v.), 1863–4, was suppressed with extreme severity; and 1868 the last relics of Polish independence disappeared in the thorough incorporation of the kingdom with the Russian empire. The subjugation of the Caucasus was completed 1859. Successive expeditions, among the last those against Khiva and Khokan, resulted in establishing Russian supremacy over all the states of Turkestan. In 1876, on the death of the gov.gen. of the Baltic Provinces, their administration was merged in that of the central govt. R. in 1870 intimated that she no longer felt bound by certain conditions of the treaty of 1856, and in a conference at London 1871 her claims were admitted. The misgovernment of Christian subjects by Turkey, and the cruel suppression by the same power of incipient rebellion in Bulgaria 1876, led to a conference of the European powers at Constantinople. Turkey rejected the proposals of the conference for better administration of the subject provinces; and R., to enforce these concessions on Turkey, declared war 1877, Apr. At first the Russian progress was rapid; but the energy of the Turks during the

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summer compelled the invaders largely to augment their forces both in Bulgaria and in Armenia. The chief events in the war were the desperate but unsuccessful attempts to expel the Russians from the Shipka Pass in the Balkans, the fall of the Turkish fortress of Kars in Nov., the resolute defense of Plevna by Osman Pasha from July till Dec., and the capture of the Turkish army of the Shipka in Jan. The armistice signed 1878, Jan., was followed in March by the treaty of San Stefano; and after diplomatic difficulties that seemed for a time likely to issue in war between R. and England, a congress of the great powers met at Berlin 1878, June, and sanctioned the rearrangement of the Ottoman empire (see **TURKEY**) and the cession to Russia of the part of Bessarabia given to Moldavia 1856, as also of the port of Batum, of Kars, and of Ardahan. The growth of Nihilism (q.v.) and of revolutionary discontent, leading to severe repressive measures, occasioned many murderous outrages, culminating in the assassination of Alexander II. 1881.—He was succeeded by his son **ALEXANDER III.** (**ALEXANDROVITCH**) (q.v.), who died in 1894, and was succeeded by his son, **Nikolas II.**

In 1891–2 R. suffered severely from a famine caused by a great drought and a consequent failure of general crops. The terr. afflicted comprised 13 provinces of European R. where the suffering was general, and 5 other provinces where it was partial. The 13 provinces covered an area equal to that of Me., N. H., Vt., Mass., R. I., Conn., N. Y., N. J., Penn., Del., Md., Va., W. Va., N. C., S. C., Ga., and Ky., combined, and had an estimated pop. of 27,000,000; and the 5 provinces were equal in area to Ind., Io., Mich., Wis., Minn., Ill., N. D., S. D., Neb., Kan., and half of O., combined, and had a pop. nearly double that of all these states. The govt. appropriated \$75,000,000 toward relieving the distress by providing food and work; a central famine committee was appointed; and the Red Cross Soc. undertook the distribution of supplies.

The principal foreign aid was from the United States, whose people sent nearly 25,000,000 lbs. of flour, grain, and breadstuffs, besides large sums of money. Among recent events are the leasing from China for 25 years of Port Arthur and Ta-tien-non with the province of Kwan-fung; the building of a railway connecting these ports with the Trans-Siberian main line; the attempt to prevent China from opening certain ports to foreign trade; the proclamation (1903) of religious freedom; the establishment to some degree of local self government; and the massacre of Jews at Kishineff (1903).

RUSSIAN CHURCH.

RUSSIAN CHURCH: community of Christians subject to the emperor of Russia, using the Slavonic liturgy, and following the Russian rite. Christianity was introduced into Russia in the 9th c. (see **OLGA**); but it was not till the end of the 10th that the foundation was regularly laid. In the great schism between the churches of Constantinople and Rome, the R. C. naturally followed silently in the train of Constantinople; yet, at the time of the Council of Florence (1439), the adherents of the Roman Church throughout Russia were as numerous as those of the Greek party. The complete separation of the R. C. from Rome was effected in the latter part of the same century.

For more than a century from this date, the R. C. continued directly subject to the patriarch of Constantinople; but 1588 the patriarch Jeremias, being in Russia, held a synod of the Russian bishops, and erected the see of Moscow into a patriarchate, with jurisdiction over the entire territory; this decree being confirmed by a synod at Constantinople. This dignity, however, was subordinate to the patriarch of Constantinople, and the subordination was acquiesced in till the reign of Alexei Michailowitch, father of Peter the Great, when the patriarch of Moscow, Nikon, refused to acknowledge it further. The pretensions of this prelate and of his successors, however, gave offense to the czar, and one of the first among the great schemes for reorganization of his empire, conceived by Peter the Great, was the direct subordination of the church to the headship of the emperor. On the death of the patriarch Adrian, 1700, he did not fill the vacant dignity, but appointed in the mean time as acting director of ecclesiastical affairs a bishop, with the title Exarch. After an interval of 20 years, the public mind having been taught to forget the patriarchate, that office was formally abolished 1721; and the permanent administration of church affairs was placed under the direction of a council, called the 'Holy Synod,' or 'Permanent Synod,' consisting of abp., bps., and archimandrites, all named by the emperor. Under direction of this council, a series of official acts and formularies, and catechetical, doctrinal, and disciplinary treatises was drawn up, by which the whole scheme of the doctrine, discipline, and church govt. of the R. C. was settled in detail, and to which all members of the clergy, and all officials and dignitaries, are required to subscribe. The leading principle of the new constitution thus imposed is the absolute supremacy of the czar; and to mark still more signally the principle that the crown is the source of all church dignity and of all ecclesiastical jurisdiction, the arrangement of provinces, archbishoprics, and bishoprics was completely changed; the old metropolitan sees, as they became vacant, were filled with simple bps., not with abps. as before; and a new arrangement of archbishoprics was established, partly by act of the czar himself, partly by interposition of the Permanent Synod.

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The constitution of the R. C. established by Peter has been maintained in substance to the present time. The Holy Synod is one of the great departments of the govt., the minister of public worship being *ex officio* a member. One of the most cherished objects of the traditional imperial policy of Russia has been to effect uniformity of religious profession throughout the empire. Dissent in all its forms has not only been discouraged, but in many cases rigorously and even cruelly repressed; and as the Rom. Cath. dissentients from the R. C. form the most numerous and the most formidable class, they have generally, but more particularly under Czar Nicholas, been the object of especial severity.

As regards doctrine, the R. C. may be regarded as identical with the common body of the GREEK CHURCH (q.v.). With that church, the R. C. rejects the supremacy of the pope, and the double procession of the Holy Spirit (see FILIOQUE). All the great characteristics of its discipline, too, are the same; the differences of ceremonial which exist, though in many cases considered by the Russians themselves of vital importance, being in themselves unimportant. On one point some explanation may be required: the liturgy of the R. C. is the same as that of the Church of Constantinople; but it is celebrated not in the Greek, but in the Slavonic language. The service-books, however, are not in modern Russian, but in the ancient languages, such as when they were originally translated, except the modification which they underwent at the time of the patriarch Nikon (see RASKOLNIKS: PHILIPPINS), and the further revision under Czar Peter. The discipline as to the marriage of the clergy is the same as that described for the Greek Church; and in carrying out the law which enforces celibacy on bishops, the Russians adopt the same expedient with the Greeks—viz., selecting the bishops from among the monks, who are celibates in virtue of their vow.

Besides the established R. C. there exists also in Russia a considerable body of dissenters of various kinds. For one class of these, see RASKOLNIKS. But by far the most numerous dissenters are the Rom. Catholics, chiefly in Poland and White Russia. At the partition of Poland, a special provision was made for the Rom. Cath. people of Poland, under the new govt., by the erection of an archbishopric in communion with Rome, at Mohilev 1783; and the organization was still more formally completed by the czar Paul, who established 1798 five bishoprics under that metropolitan see; and the arrangements of the Congress of Vienna having somewhat deranged these ecclesiastical dispositions, a new arrangement was entered into by Pius VII. 1818. But it cannot be doubted that the whole policy of the Russian govt., in reference to the church, makes it almost impossible that they should permit free exercise of worship and of thought to the Catholics in communion with Rome. The direct legislation, and still more the prae-

tical administration of Russia in Poland, in reference to marriage, to church property, to conventual establishments, and to ecclesiastical regulations generally, has been a policy of repression and of compulsory proselytism. This policy has been more sedulously pursued since the recent reorganization of Poland. In 1867 the archbishopric of Warsaw was abolished, and all the Rom. Catholics of the empire were made subject to the abp. of Mohilev.

In 1889 the govt. appropriated \$5,435,396 for the support of the Holy Synod.—For numbers of adherents to various creeds, see **RUSSIA**.

RUSSIAN LANGUAGE AND LITERATURE: principal Slavic language and literature.—Russian, as a member of the Slavic family of languages, became a written language first in the time of Peter the Great, till which period the Old Slavic—the language of the church—had been the only medium of literary expression, and had, in consequence, exercised important influence on the Russian popular speech, as on that of other Slavic dialects. The Mongol conquest, and the preponderance of Polish elements in w. parts of the empire, also introduced into the Russian language a great number of Mongolian and Polish expressions; in addition to which, the efforts of Peter the Great to give his subjects the benefits of western culture enlarged the Russian vocabulary, especially in arts and industry, with numerous German, French, and Dutch words. The chief characteristics of Russian, as a language, are simplicity and naturalness. The grammatical connection of sentences is slight, and the number of conjunctions scanty. Perspicuity and expressiveness are obtained by the freedom allowed in placing of words. Auxiliary verbs and articles there are none; while personal pronouns may or may not be used with verbs. The vocabulary of Russian is very rich—foreign words being Russianized. The capability of the language for forming compounds and derivatives is so great, that from a single root not less than 2,000 words are sometimes derived. The purest and most grammatical Russian is spoken in the centre, about Moscow. The oldest Russian Grammar is that of Ludolf (Oxf. 1696); others are the Grammars of the St. Petersburg Acad. (1802), of Gretsche (Petersb. 1823; new ed. 1834), and of Vostokov (10th ed. Petersb. 1859). A *Russian Grammar for Englishmen* was pub. St. Petersburg 1822; another (by Heard) 1827. The best Dictionaries are those of the Russian Acad. (4 vols. Petersb. 1847), of Heym (1803–05), of Schmidt (Leip. 1815), Oldekop (4 vols. 1825) Sokolov (Petersb. 1834), Reiff (1862), Paulovski (1859). There is an English-Russian grammar and dictionary by Constantinoff (3 vols.).

The beginnings of Russian literature are contemporaneous with the introduction of Christianity by the missionaries Cyril (q.v.) and Method, who employed the Old Slavic church-tongue for literary purposes. To this

earliest period belongs—besides the *Prawda Ruskaja*, a book on law—the noted history or chronicle of Nestorius. After the subjugation of Russia by the Tartars, knowledge withdrew into the shelter of the monasteries, whence proceeded several important historical works. During this foreign domination, the Russian people seem to have sought consolation and hope in writing patriotic ballads and songs about their great hero-king, Vladimir—the Russian Charlemagne; the most celebrated of which is *Igor's Expedition against the Polowzi* (Berl. 1855). When at length the country was freed from Mongol oppression by Ivan I., 1478, Russian literature received fresh impulse; but so tardy were its motions, so circumscribed its achievements, that, till the 18th c., the only notable names are the metropolitan Makarius (d. 1564), who wrote *Lives of the Saints*, etc.; Zizania, author of a Slavic Grammar (Wilna 1596); and Matviejev (17th c.), who composed historical and heraldic works. The czar Alexei Michailowitch (whose prime-minister Matviejev was) caused a valuable collection of Russian laws to be printed 1644, and founded an acad. at Moscow, in which grammar, rhetoric, poetry, dialectics, philosophy, and theology were taught. But from political causes, the Polish element then began to predominate in Russian literature, and continued so, more or less, until the time of Peter the Great, who made his native language the universal vehicle of communication in business and writing. He established schools and founded the St. Petersburg Acad. During his reign, the metropolitans Demetrius (1651–1709) and Javorskij (1658–1722); the abp. Prokopovitch (1681–1736); Sellij (d. 1746); the national historian Tatishshev (1686–1750); the poet Kantemir; and the Cossacks Klimovskij and Danilov were the most distinguished supports of literature. The first to place on a firm basis the Russian metrical system was Trediakovskij (1703–69). In the period that followed the death of Peter, the writer that exercised the strongest influence on Russian literature was Lomonossov, who first drew the lines of distinction sharply between Old Slavic and Russian, and established the literary supremacy of the dialect of Great Russia. Among his successors, the poet Sumarokov (1718–77) did service in development of the Russian drama; so did Kniashnin (1742–91), whose pieces still keep their place on the Russian stage; while Wizin (1745–92) ranks as one of the first prose writers of his age. Some of his prose comedies are full of genuine humor.—Other notable names in poetry, belonging in whole or part to this period, are Cheraskov, Oserov, Prince Michailovitch, Dolgoruki, Chvostov, Petrov, Bogdanovicz, and Derzawin (q.v.), the first universally popular Russian poet. Prose literature, however, developed itself more slowly. Lomonossov was long the model. Among the first to make a fresh reputation were Platon, metropolitan of Moscow, and Lewanda (1736–1814), archpriest of Kieff, who distinguished themselves from their bombastic

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brethren by the vigor of their thinking; the historians Sehtsherbatov (1733–90), Boltin (1735–92), and Muraviev (1757–1807). Still more important, in the same department, were the labors of the German Gerh. Friedr. Müller, native of Westphalia, who, 1755, established at St. Petersburg the first literary journal. Novikov (1744–1818) gave stimulus to the book-trade and to literary productivity, partly by his professional zeal, partly by publishing a satirical journal, *The Painter*.

A new epoch in Russian literature commenced with Alexander I., who was enthusiastic for education and progress. The number of universities was raised to seven; learned societies also were increased. The great ornament of literature at this period was Karamzin (q.v.), who freed it from the trammels of the pseudo-classicism within which it had been confined by Lomonossov. His labors were continued by Dmitriev and Batjushkov, while Shishkov combated with success the tendency to deprive the language of its Slavic character; and in the poetry of Shakovski, the national elements reasserted themselves. With these may be mentioned the historian Bolchovitihov (1767–1837) and the theologian Drosdov, Abp. of Moscow; the poets Koslov, Prince Alexander Shachovski (d. 1846), one of the best comic authors of Russia, and of amazing fertility; Gribojedov, Glinka, Prince Vjasemski (b. 1792), celebrated songwriter, elegist, and critic; Davidov, and Gnieditsh. Mersljakov, who died a prof. in Moscow, was a very able critic; while Chemnicer (1744–84) and Krylov (1768–1844) rank first among the original fabulists of Russia. Bulgarin and Gretsck belong rather to the most recent period of Russian literature—a period characterized by predominance of Russian influences, and complete absorption into the one national spirit of all minor and foreign elements. The czar Nicholas labored with his wonted passionate energy in this direction. Among the poets of this thoroughly Russian period, the most conspicuous and brilliant is Pushkin (q.v.), whose verses are a mirror of Russian life, in which are shadowed forth the joys and griefs, the humor and the patriotism, of the true Russian peasant. The most remarkable of Pushkin's contemporaries and successors are the poets Baratynski (d. 1844), Baron Delvig, Benediktov, Podolinski, Lermontov, N. Minski, Mereshkovski, Frug, and Nadson, the poet of melancholy and pessimism; the dramatists Nikolaus Polevoi and Nestor Kukolnik, who drew the matter of their dramas from the national history; and Gogol (q.v.), one of the most illustrious names in Russian literature. —Russian novels exhibit a condition of society in which barbarism struggles for supremacy with a superficial civilization: the best writers in this department are Bestushev, Bulgarin, Sagoskin, Vasili Ushakov, author of *Kirgis-Kaisak*, etc.; Count Solohub, whose novels give a graphic picture of St. Petersburg society; Prince Odojevski, Baron Theodor. Korff, Konst. Masalski, and

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Senkovski (reckoned one of the first journalists in Russia); Dostoievsky and Pisemski, both of whom died 1881; Turgeneff (q.v.), known by numerous French and English translations; Alexander Herten (q.v.), the 'liberal Russian' exile; Gontsharov, Saltykov, Count Leo Tolstoi (q.v.), Uspenski, Danilevski, Count Salias, B. Markewitch, and others.—The delineations of Cossack life are too numerous for special notice, but they constitute a distinct section of the literature of Russian fiction, and are composed for the most part in the dialect of Little Russia.—Great attention has been given in Russia, as in all Slavic countries, to popular songs and proverbs: the principal collections of these are by Novikov, Kashin, Maximovitch, Makarov, and Sacharov.—The later developments of Russian literature have been chiefly in the department of history, and among the most distinguished names are those of Prof. Ustrialov of St. Petersburg, Prof. Pogodin of Moscow, Polevoi, Vasili Berg (d. 1834), Lieut. Gen. Michailovski Danilevski, Prof. Snjegirev, Sreznevski, Slovtsov, Samailov, Solovjev, Strovjev, Neverov, Arsenjev, Wesselovski, etc. The study of the history of Russia has been greatly promoted by the Russ. Hist. Soc. and the archeological institutes of St. Petersburg, Kieff, and Wilna.—Such philosophy as exists in Russia is an echo of the modern German and English schools, and therefore lacks originality.—Advances in theology are hardly to be looked for as yet from a church so deeply sunk in ignorance and intellectual stupor as the Russian, yet nowhere is reform more urgently required: the religious writings of Count L. Tolstoi (q.v.) are designed to awaken the minds of the people to one of the departments of social ethics in Christianity: but such writings are not allowed to be printed in Russia.—As writers on jurisprudence, Nevolin, Moroshkin, Spassowitch, D. Meyer, deserve mention; among mathematicians, Simonov, Perevoshtshikov, Wesselovski, Tsherbyshev, Savitch; among physicists, Turtshaninov, Metshnikov, Sokolov, Kutorga, Koksharov, Kessler, Annenkov; and as linguists, Vostokov, Biliarski, Buslajev, Jagiés, Lawanski.—See Otto, *Text-book of Russian Literature* (Leip. 1837; transl. into Eng. by Cox, Oxford 1839); Jordan, *History of Russian Literature* (Leip. 1846); Talvi (Mrs. Robinson), *View of Literature of the Slavic Nations* (1850); Courrière, *Histoire de la Littérature Contemporaine en Russie* (Paris 1875); K. Haller, *Geschichte d. Russ. Litteratur* (1882); A. Reinholdt, *Gesch. d. Russ. Litt.* (1885).

RUS'SIAS, ALL THE: official designation of the Russian empire in Europe; assumed 1654, when Czar Alexei Mikailowitch styled himself for the first time 'Tzar of All the Russias,' after his conquest of Little Russia and acquisition of Smolensk from Poland. This phrase at first included only Great Russia, White Russia, and Little Russia.—*Great Russia*, formerly Muscovy, by far the largest of these three divisions, includes the territory

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now comprehended in the 19 govts. of Archangel, Olo-netz, Vologda, Novgorod, Tver, Jaroslav, Kostroma, Pskov, Smolensk (partly), Moscow, Vladimir, Nijni Novgorod, Kalouga, Toulá, Riazan, Tambov, Orel, Koursk, and Voronetz.—*White Russia* included the provinces of Vitebsk, Mohilev, and the rest of Smolensk, and though long held by the Poles, was re-united to Russia at the first and second partitions of Poland (1772 and 93). In 1793, it received the accession of the Polish provinces which now form the govts. of Vilna, Minsk, Kovno, Volhynia, Podolsk; and White Russia with these accessions was then denominated *West Russia*.—*Little Russia* contains the ancient Russian possessions in the s.w., which, in the middle ages, became independent under the Cossacks of the Ukraine, and were finally re-united to Russia 1654; and is divided into the four provinces, Kiev, Tchernigov, Poltava, and Kharkov.—During the 18th c., the countries between Great Russia and the Black Sea wrested from the Turks, were formed into a fourth great division, under the name *Southern Russia*: this includes the districts occupied by the Don Cossacks, sometimes called *New Russia*.—*Red Russia* was a portion of the Russian principality of Galich (Galicia), and with the rest of it, was subdued by Casimir III. of Poland; it included what is now the province of Lublin, in the kingdom of Poland, and the e. portion of Austrian Galicia, and is inhabited by Poles, and another and antagonistic people, called Russniaks (q.v.).

RUSSNIAKS, *rŭs'ňĩ-ăks*, also RUSSINE and RUTHENI: variety of peoples who form a branch of the great Slavic race, and are sharply distinguished from the Muscovites, or Russians proper, by their language and the whole character of their life. They are divided into the R. of Galicia, N. Hungary, Podolia, Volhynia, and Lithuania, and are estimated by Schafarik to number 13,000,000. Almost all are agriculturists, and on the whole rather uncultivated. Before the 17th c., they were a free race; but were then subjugated, partly by the Lithuanians, partly by the Poles, and for a long time belonged to the Polish kingdom. Their language has consequently become closely assimilated to the Polish. In earlier times it was a written speech, with distinctive characteristics, as is seen from the translation of the Bible, pub. at Ostrog 1581, and other literary monuments. The R. belong mostly to the United Greek Church, but in part to the Non-united. They preserve many old customs peculiar to themselves, and much folk-lore, prose and poetic, like that current in Poland and Servia. Of late the name *Ruthenians* has been reserved chiefly for the Slavonian inhabitants of Austria, on both sides of the Carpathians; and distinguishes them from their kinsmen, the Little Russians of Russia. Dislike to Poland has led them to incline to the Russian language. In 1880, there were nearly 3,000,000 R. in Austria.

RUSSO-GERMAN WAR—RUSTCHUK.

RUS'SO-GER'MAN WAR: name given by German historians to the last stage of the great European war against Napoleon, beginning with the Russian campaign of 1812 and ending on the field of Waterloo: see **NAPOLÉON**.

RUSSOPHILE, *n.* *rŭs'so-fil* [prefix *Russo*; Gr. *philos*, loving, a friend]; admirer or supporter of Russia or her policy: **ADJ.** A supporting Russia or her policy. **RUSSOPHOBIA**, *n.* *rŭs-so-fō-bī-a* [prefix *Russo*; Gr. *phobos*, fear]: fear of Russia, her power or policy; strong feeling against Russia or the Russians. **RUSSOPHOBIST**, *n.* *rŭs'so-fōb-ist* or *rŭs-sōf'o-bist*, one who dreads or is strongly opposed to Russia or her policy.

RUST, *n.* *rŭst* [Ger. and Sw. *rost*; Dut. *roest*, rust]; coating formed on most metals when exposed to the air or moisture; reddish matter formed on iron or steel—red oxide of iron; loss of power or ability by inactivity or want of use; foul or extraneous matter; disease in plants (see below). **V.** to gather rust or extraneous matter; to become rusty; to lose ability or power by want of use; to degenerate in idleness. **RUST'ING**, *imp.* **RUST'ED**, *pp.* **RUSTY**, *a.* *rŭst'ī*, covered with rust or extraneous matter; surly; impaired by inaction or neglect of use; rough; having the appearance of rust and a rancid flavor, as bacon. **RUST'ILY**, *ad.* *-ī-lī*. **RUST'INESS**, *n.* *-nēs*, the state of being rusty.

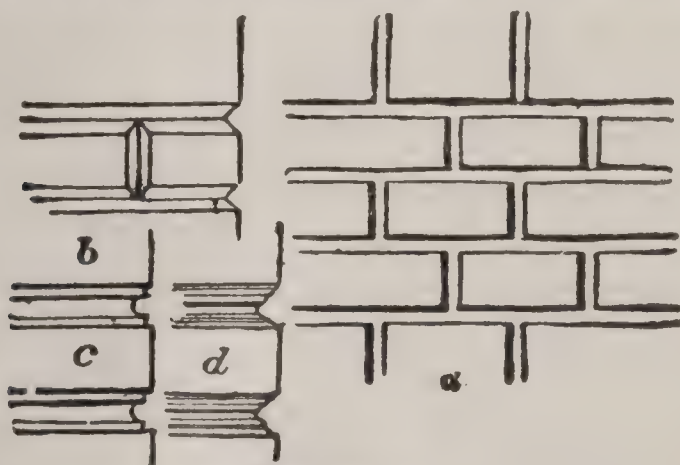
RUST: disease of plants, which shows itself on the stems and leaves of many plants, and on the ears of grasses, both of the cereal grasses, and of many pasture or forage grasses; in brown, yellow, or orange-colored spots; and after destroying the epidermis of the plant, assumes the form of a powder, which soils the fingers when touched. *R.* seems to consist at first of small fungi of one cell, sometimes divided by a transverse wall, belonging chiefly to genera *Uredo* (q.v.) and *Puccinia* (q.v.); which, finally, breaking through the diseased epidermis, form a colored dust of mere spores. The name *R.* is sometimes restricted to the *Uredo rubigo vera*.—*R.* is sometimes very injurious to crops. No remedy is known for it; but it is thought that rank manures tend to produce or aggravate it. See **URED**O.

RUSTCHUK, *rŭs-chôk'*: important town of the principality of Bulgaria, 70 m. w.s.w. of Silistria, on the s. bank of the Danube opposite Giurgevo. Its position on a range of hills, with its white chimneys, its mosques and minarets rising from amid forests of fruit-trees, gives it a picturesque appearance. The Danube is here about 2 m. wide, but its channel is marked with islets and shallows. *R.* has manufactures of meerschaum pipes, pottery, saddlery, leather, cloth, tobacco, and silk, and is connected by rail with Varna. It was determined by the Berlin Congress 1878 that the fortifications of *R.*, extensive but not very important, should, like those of the other Bulgarian fortresses, be destroyed. **Pop.** nearly half Mohammedans, (1888) 27,198.

RUSTIC—RUSTLE.

RUSTIC, a. *rŭs'tik* [F. *rustique*, rustic—from L. *rustĭ-cŭs*, belonging to the country, rural—from *rus*, the country: It. *rustico*]: pert. to the country; rural; having the manners of those living in the country; plain; rude; untaught; awkward: unadorned; N. an inhabitant of the country; a peasant. **RUS'TICAL**, a. *-tĭ-kal*, rough; rude. **RUS'TICALLY**, ad. *-lĭ*. **RUS'TICALNESS**, n. *-nĕs*, the quality of being rustical. **RUSTICITY**, n. *rŭs-tĭs'ĭ-tĭ*, rustic manners; simplicity. **RUSTICATE**, v. *rŭs'tĭ-kāt*, to dwell or reside in the country; to banish from a university or college for a time. **RUS'TICATING**, imp. **RUS'TICATED**, pp. **RUS'TICA'TION**, n. *-kā'shŭn*, residence in the country; state of being rusticated (in *arch.*, see below). **RUSTIC CHAIR**, a chair or seat made of the undressed branches or boughs of trees, or made to resemble such. **RUSTIC WORK**, in *arch.* (see below).—**SYN.** of 'rustic, a.' inelegant; rough; coarse; savage; unpolished; unadorned; artless; honest; simple; plain; awkward; untaught; rural;—of 'rustic'n.': peasant; clown; countryman; hind; swain.

RUS'TIC, or **RUS'TICATED**, **WORK**, and **RUSTICATION**: kind of masonry in which the various stones or courses are marked at the joints by splays or recesses. The surface of the stone is sometimes left rough, sometimes



Rustication.

polished or otherwise dressed. **R.** is used chiefly in classical or Italian architecture, though Rustic Quoins (q.v.) are often used in rough Gothic work. In the figure, *a* and *b* show forms of **R.** usually applied to surfaces; *c* and *d* show rustic quoins with moldings on the angles.

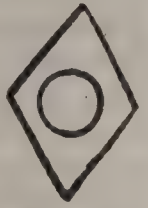
RUSTLE, v. *rŭs'l* [Low Ger. *russeln*; Ger. *ruscheln*, to rustle: Sw. *rusta*, to move with a slight noise—an imitative word]: to make a low rattling noise, as in the rubbing or movement of silk, dry leaves, etc. **RUSTLING**, imp. *rŭs'ling*: **ADJ.** making a low slight sound, as of silk cloth when shaken or rubbed: N. a quick succession of low short sounds, as of a rubbing or moving among leaves or dry straw. **RUS'TLED**, pp. *-ld*. **RUS'TLER**, *-lĕr*, one who rustles.

RUSTRE—RUT.

RUSTRE, *rūs'tr*, in Heraldry: one of the subordinaries, consisting of a Lozenge (q.v.) with circular opening pierced in its centre.

RUSTY: see under **RUST**.

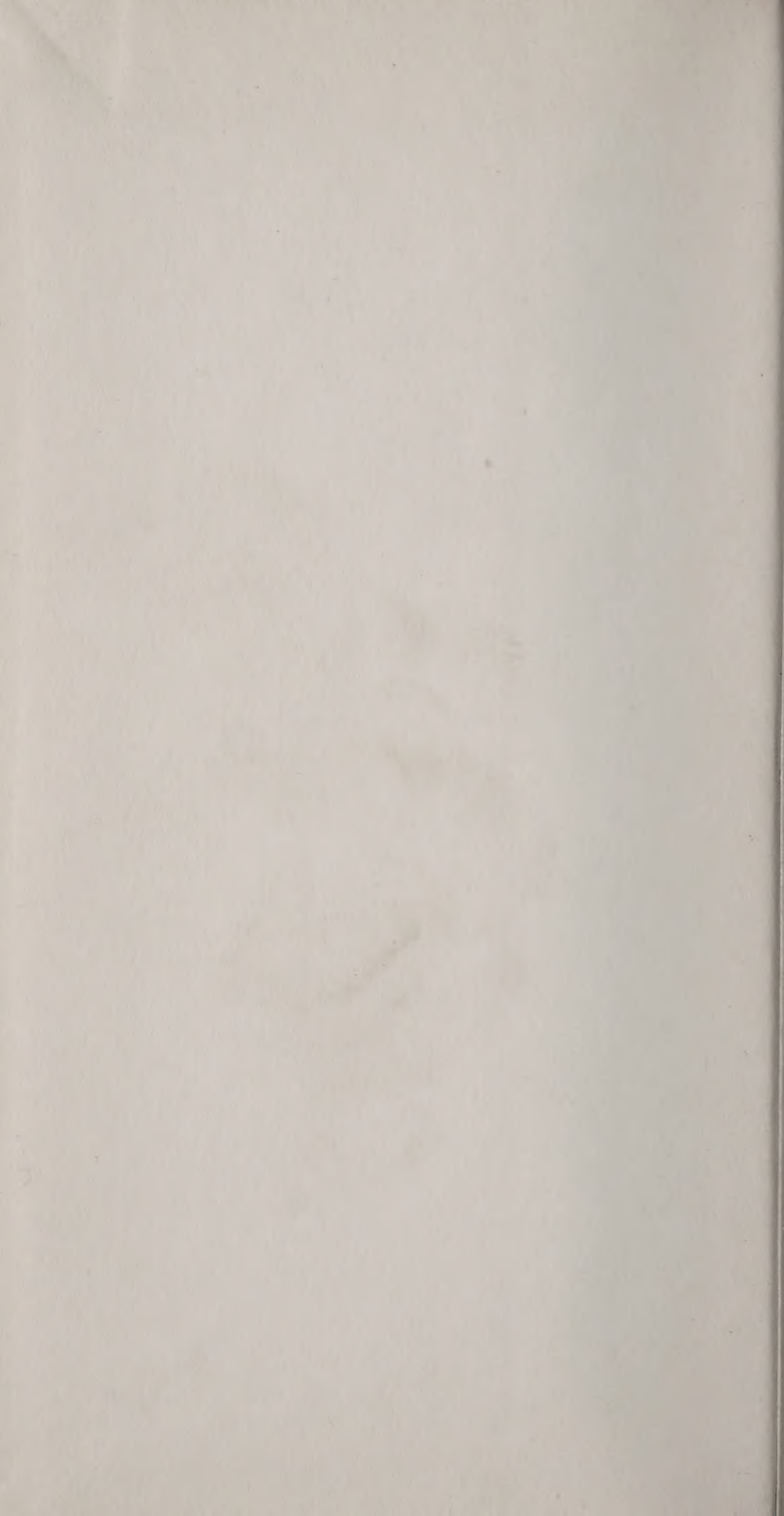
RUT, n. *rūt* [OF. *ruit* or *rut*, the lust of deer or boars; *ruir*, to roar—from L. *rugīrē*, to roar: Bret. *ruda*, to be on heat: Swiss, *rüden*, to bellow: Sp. *ruido* noise, uproar]: the engendering or copulation of deer or boars: V. to engender, as deer. **RUT'ING**, imp. **RUT'TED**, pp. **RUT'TISH**, a *-ish*, lustful; wanton.



Rustre.

RUT, n. *rūt* [Fr. *route* (see **ROUTE**)]: the track of a wheel; a line cut in the soil with a spade: V. to cut into ruts, as a road; to cut a line on the soil with a spade. **RUT'ING**, imp. **RUT'TED**, imp. **RUT'TY**, a. *-i*, full of ruts.





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